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# A STUDY OF THE RELATIONSHIP BETWEEN EDUCATIONAL PROGRAM LEVELS IN ALBERTA SCHOOL SYSTEMS AND SELECTED MEASURES OF FISCAL AND NON-FISCAL VARIABLES

BY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A STUDY OF THE RELATIONSHIP BETWEEN EDUCATIONAL PROGRAM LEVELS IN ALBERTA SCHOOL SYSTEMS AND SELECTED MEASURES OF FISCAL AND NON-FISCAL VARIABLES submitted by Lloyd Edwin Symyrozum in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Educational Administration.

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Date May 21, 1981

# ABSTRACT

The purpose of this study was to describe the relationship between the major curricular programs provided in Alberta school systems and selected measures of demographic, wealth, fiscal effort, revenue and expenditure related variables.

The data used in the study were drawn from records maintained by the Department of Education based on information supplied by public and separate school jurisdictions. Financial records used covered the 1977 and 1978 fiscal years, and the school program information used covered the 1978 to 1979 school year.

A District Program Index (DPI) was developed as a means to describe school curricular program offerings in selected major subject areas at each grade level on a district-wide basis. Calculation of the DPI took into consideration two factors: (1) the amount of scheduled instructional time in school courses offered in designated major subject areas at each grade level; and (2) the grade enrolment of individual schools within each district. The DPI was expressed in credit-equivalent units where one credit represented 25 hours of scheduled instructional time per year.

Generally, the findings of this study show that four factors accounted for approximately one-half of the variance noted in the total instructional time provided in major subject areas, grades one through twelve. These were jurisdiction type, senior high enrolment, per pupil expenditure for transportation, and ratio of School Grants Regulations

(SGR) payments received to total operational revenue.

Of the several implications of the study, two are considered to be of major importance. The first major implication was the development of a DPI that could be applied on a province-wide basis to monitor changes in district program levels from year to year. The second major implication was the application of a statistical procedure (i.e., multiple linear regression analysis) useful in determining which individual measures, from a set of fiscal and non-fiscal variables, in combination tend to account for the greatest amount of variance found in particular district program offerings. Use of this technique could provide a central funding authority with information concerning the influence of certain factors within and outside the control of the government, at both the provincial and local levels, on district program levels.

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# Chapter 1

# INTRODUCTION

> ...The creation of educational opportunity in which every child's aspirations are checked only by his or her limitations is the ideal to which we are all committed. (Fleischmann, 1973:225)

The provision of equality of educational opportunity in publicly supported systems of education has been the focal point of school finance reform for several decades now. The worth of receiving an education has been considered to be important from at least two major societal perspectives:

> First, education is a major determinant to an individual's chances for economic and social success in our competitive society; second, education is a unique influence on a child's development as a citizen and his participation in political and community life. (Cited in Cohn, 1974:295)

Since education appears to have such widespread individual benefits and national implications, Jennings (1979:403) has noted that there is general agreement that the "state must provide equal educational opportunity to its students regardless of which fiscal devices it uses to fulfill that duty."

As the trend toward further decentralization of state government functions has continued to receive emphasis in public policy formation, there also seems to have been a corresponding centralization of major revenue sources at the state level to finance programs provided at the local level. Generally, the search for more equitable mechanisms to be used by central authorities to distribute required resources among decentralized units has taken on added importance (Wilensky, 1970:10).

According to Levin et al. (1972) and Johns (1977), the relationship between the access of pupils to educational programs and various factors related to financing education has remained relatively unexplored in studies of school finance. The intent of this study was to examine this matter in the context of the Alberta school finance plan and the major curricular programs provided in elementary and secondary education throughout the province.

## STATEMENT OF THE PROBLEM

The purpose of this study was to describe the relationship between the major curricular programs made available in school systems and certain measures of fiscal and non-fiscal variables. More specifically, this study sought to describe the extent to which any of the variation found in the amount of scheduled instruction time in major subject areas provided in Alberta school systems could be accounted for by a number of selected measures of demographic, wealth, fiscal effort, revenue and expenditure related variables. For this to be done, it was necessary to develop a District Program Index (DPI) by which school program data pertaining to instructional time allocated to various subjects offered in individual schools at the elementary, junior and senior high levels could be aggregated for each jurisdiction. Thirty-two predictor variables were delineated for examination in the study following a selected review of the literature pertaining to educational finance. To complete the study, the research problem was subdivided into four distinct parts as outlined below.

Statement of Problem 1

To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the elementary level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Sub-Problem 1.1. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas at the elementary level?

Sub-Problem 1.2. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas at the elementary level?

Sub-Problem 1.3. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the elementary grades?

Sub-Problem 1.4. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the elementary grades?

Sub-Problem 1.5. What is the nature and extent of variance of the DPI for the total instructional time provided at the elementary level?

Sub-Problem 1.6. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the elementary level?

Statement of Problem 2

To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the junior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Sub-Problem 2.1. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas at the junior high level?

Sub-Problem 2.2. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas at the junior high level?

Sub-Problem 2.3. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the junior high grades?

Sub-Problem 2.4. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the junior high grades?

Sub-Problem 2.5. What is the nature and extent of variance of the DPI for the total instructional time provided at the junior high level?

Sub-Problem 2.6. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the junior high level?

Statement of Problem 3

To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the senior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Sub-Problem 3.1. What is the nature and extent of variance of the DPI for the total intructional time provided in each of the major subject areas at the senior high level?

Sub-Problem 3.2. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas at the senior high level?

Sub-Problem 3.3. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the senior high grades?

Sub-Problem 3.4. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the senior high grades?

Sub-Problem 3.5. What is the nature and extent of variance of the DPI for the total instructional time provided at the senior high level?

Sub-Problem 3.6. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the senior high level?

Statement of Problem 4

To what extent may the variance of DPI's for the total instructional time provided in major subject areas, grades one through twelve, be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Sub-Problem 4.1. What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas, grades one through twelve?

Sub-Problem 4.2. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas, grades one through twelve?

Sub-Problem 4.3. What is the nature and extent of variance of the DPI for the total instructional time provided in grades one through twelve?

Sub-Problem 4.4. To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in grades one through twelve?

## SIGNIFICANCE OF THE STUDY

Since the introduction of the Alberta school foundation program in 1961, a principal aim of the scheme has been to provide for greater fiscal equalization of school board revenues. While efforts to equalize educational expenditures on a per pupil basis have been made at the provincial level, Bumbarger and Ratsoy (1975:3) indicate that certain situational variables have often not allowed equal educational programs to be provided by equal expenditure of funds. Levin et al. (1972:11) make the following observation with respect to this issue in school finance:

> ...While dollar disparities in per pupil spending for education among school districts have already been well documented by others, the real question is whether disparities in dollars mean equivalent disparities in educational resources.

According to Johns (1975:159), future methods of financing education will be directed toward more differentiated funding schemes based on program costs rather than simply on the continued use of a single proxy for "need" such as the number of students.

Previous studies (Pike, 1972; Deiseach, 1974; Richards, 1979; Meek, 1979; and Hanson, 1979) related to various aspects of the Alberta school finance plan have not centered, to any extent, on major factors related to educational program availability at the local level. This study, supported by Alberta Education, was designed as a first step in providing each of the following:

1. A means by which existing curricular program levels in school systems could be described for comparative purposes;
2. Provision of base line information concerning the nature and extent of variation found in program levels across the province for the 1978-79 school year; and,
3. Identification of factors considered relevant to the development of a more comprehensive approach to funding basic education (i.e., grades one through twelve) programs in the province.

In general, this study was intended to serve as a prototype model that might be considered as an alternative means to evaluation of state systems of school support in terms of three component parts: (1) data preparation, (2) aid allocation, and (3) data analysis.

## DEFINITION OF TERMS

Most terms are defined in context throughout this study, but a few more important terms are defined below.

### School Finance Plan

Constitutionally, ultimate control of education in Canada resides with the Legislative Assembly in each province subject only to the maintenance of guaranteed denominational rights. As a result, each province legislates and regulates its own system of taxation for, and financial support of, local school jurisdictions. In this study, a school finance plan refers to that aspect of public policy which deals with the raising, distributing and spending of public funds for basic education (Garms, et al. 1978:10).

### Public Policy

Public policy refers to a "generalized statement of intent directed toward achievement in the public domain (Tymko, 1979:10)." It is formulated and receives expression through the political process, reflects the societal outcomes desired, and outlines the means by which these outcomes may be achieved.

### School Foundation Program

A school foundation program denotes a type of grants-in-aid scheme by which a provincial government provides local school boards under its jurisdiction with support for the provision of a basic (foundation) level of educational services in public elementary and secondary schools

(Deiseach, 1974:9; Meek, 1979:15). The main features of a school foundation program are as follows:

1. The cost of a basic educational program is determined by the province.
2. A uniform tax rate on local property based on the equalized assessment is set as a compulsory levy in all school jurisdictions.
3. Where provincially-levied local property taxes are insufficient to meet the cost of the basic educational program supported, the balance is procured from the general revenues of the province.
4. The province then distributes the grants-in-aid to local school jurisdictions using various funding mechanisms usually based on some common unit of need (e.g., a pupil).
5. School jurisdictions willing to provide for expenditures beyond the basic level of support provided may do so through a supplementary requisition levy on local property.

## School Foundation Program Fund (SFPF)

Since 1961, the major grants-in-aid program for local school jurisdictions in Alberta has been the School Foundation Program Fund. The nature and extent of funding provided each year to school boards is determined by an Order-in-Council of the Executive Council with the amount of the overall appropriation initially approved by the Legislative Assembly. SFPF regulations provide support to school boards in the following three major categories: (1) per pupil grants, (2) an administration allowance, and (3) transportation grants.

## Categorical Grants

Categorical aid refers to a broad class of grants-in-aid through which a central funding authority responds to particular needs at the local level that are "neither equally nor randomly distributed among school districts and thus are not considered in general provisions for basic school support (Berke and Goettel, 1974:224)." Usually, categorical grants are determined in proportion to the need for a particular educational program (e.g., special education) and sometimes in an inverse relationship to local wealth.

## School Grants Regulations (SGR)

In Alberta, "additional differentiated support which bear on the educational program and service dollars available, e.g., local wealth (MACSF, 1975:5)," are provided through funding mechanisms outlined in the School Grants Regulations (SGR) established through Order-in-Council.

## Supplementary Requisition

Supplementary requisition refers to a local property tax levy, beyond the uniform provincial levy for the School Foundation Program Fund, which is required to provide desired educational services in excess of the "minimum" provincial program supported through SFPF grants and SGR grants.

## School Jurisdiction Size

School system size refers to the total number of pupils enrolled in publicly supported schools who are eligible for provincial grants.

## Wealth

In this study, wealth or ability to pay refers to the capacity of a school jurisdiction to raise property taxes for school support. The capacity of a school board to generate local revenues is proportional to the equalized assessment per pupil. The principle of ability to pay is often viewed as a universal standard of equity (fairness) in distribution of the tax burden (Deiseach, 1974:11). Hence, a school jurisdiction with a greater ability to pay should under most circumstances be required to raise more taxes for education than those with fewer fiscal resources.

## Fiscal Effort

Fiscal effort or tax effort refers to the relative tax load assumed by property owners in a school jurisdiction for support of educational services. It is measured in mills based on the proportion of equalized assessment which is paid out in local property taxes or by the amount requisitioned per pupil through local taxation of property (Meek, 1979:19).

## Curricular Program Area

Curricular program area refers to a group of related subjects or course content that are said to comprise a particular major subject area. For example, program offerings in arts, music and drama are referred to as the fine arts.

## Index

An index is a number which "measures the value of a variable relative to its value at a base period (Moore, 1979:207)." The variable selected may refer to an average of more than one quantity, with the weight given to each individual quantity remaining fixed over time.

### Time Series

A time series refers to "a sequence of measurements of the same variable made at different times (Moore, 1979:217)." In most instances, the variable is measured at regular intervals of time in order to make meaningful comparisons of any changes that may be occurring in the value of the variable.

### District Program Index (DPI)

In this study, a District Program Index refers to the total amount of instructional time provided in major subject areas outlined in the Junior-Senior High School Handbook (1978-79) issued under the authority of the Minister of Education pursuant to Section 12 of The School Act. It is expressed in credit-equivalent units where one credit represents 25 hours of scheduled instruction time per year. In the calculation of a particular DPI for an individual school jurisdiction, consideration was given to the grade enrolments of individual schools.

### Equality of Educational Opportunity

In this study, equality of educational opportunity was viewed primarily as equality of pupil access to curricular programs offered in major subject areas outlined in the Alberta program of studies as well as those which had been developed locally. Equality of educational opportunity was not taken to mean equality of results or student outcomes.

School District

In Alberta, school systems having an elected board or one established through Ministerial appointment (in certain special circumstances) are classified as being either public or separate. Public school districts include school divisions and boards of education in counties where a number of individual school districts are considered as a single governing authority in each case. No differentiation is made per se between public and separate school districts in terms of any of the provincial grant entitlements. This is not the case with respect to private school authorities which operate in the province.

## ASSUMPTIONS, DELIMITATIONS AND LIMITATIONS

The major assumptions made in this study are outlined below:

1. That the use of a linear regression model, where a correlation of zero is taken to mean a random relationship between variables, was a good fit to the data which were analyzed. The search for any curvilinear relationship which may have existed between certain predictor and criterion variables was considered to be beyond the scope of the study.
2. That the financial data pertaining to the 1977 fiscal year of school boards, being the mid-year of the three-year school finance plan in place from 1976 to 1978, inclusive, was a close approximation of that covering school board revenues and expenditures for the 1978-79 school year.
3. That the variation of the ability among school jurisdictions to support education tends to be reduced through a greater utilization of state resources with other things being equal such as local taxable wealth and fiscal effort.

4. That the average quantity of instruction time allocated to various subject areas within a school jurisdiction is a measure representative of the program level provided to students locally (Kemmerer, 1979).

## Delimitations

The study was delimited as follows:

1. To deal with major curricular programs offered in Alberta public and separate school jurisdictions, excluding those provided in regional school districts and private schools.
2. To focus on the average total instructional time allocated to various major subject areas, grades one through twelve, and omitting particular reference to any instruction which may have been provided to learning disabled, handicapped, or disadvantaged pupils because of their uniqueness in individual school settings.
3. To isolate school jurisdictions, rather than individual schools, as the basic units of observation in order to emphasize interdistrict rather than intradistrict variance in program availability.
4. To make use of information collected annually by Alberta Education from each school system in the province.

## Limitations

The major limitations of this study were two-fold. First, the study was designed to be cross-sectional in nature, i.e., covering a period of only the 1978-79 school year. Hence, generalizability of the findings for succeeding school years is restricted. Second, the study was not purported to deal per se with the extent of educational program equalization achieved under the Alberta school finance plan. Instead, the focus of the study was aimed to a large extent at identifying which fiscal and non-fiscal factors tended to interact in combination and have the most bearing on curricular program levels in a given year in order to facilitate the conduct of future studies using the 1978-79 school year as the base year for comparative purposes.

## ORGANIZATION OF THE STUDY

This chapter has presented (1) an introduction to the problem, (2) the statement of the problem, (3) the significance of the study, (4) the definition of terms used, and (5) the assumptions, delimitations and limitations of the study. The remainder of the thesis is outlined below.

Chapter 2 presents a selected review of the literature and sets out the analytical framework for the study.

Chapter 3 describes the research design and procedures used in the study.

Chapters 4, 5 and 6 report the findings of the study at the elementary, junior high and senior high levels, respectively.

Chapter 7 reports the findings of the study for major subject areas, grades one through twelve.

Chapter 8 contains a summary, the conclusions, and a statement of implications and suggestions for further study.

# Chapter 2

# REVIEW OF RELATED LITERATURE

This chapter presents a selected review of the literature viewed pertinent to the nature of the problem statements under study and an analytical framework. The review of literature is divided into two major parts. The first part provides an overview of some of the major conceptual developments in school finance, while the second part focuses on issues and research findings that relate to each of the five major categories of predictor variables examined in the study. An analytical framework for the study is then presented in the remaining section of the chapter.

## MAJOR CONCEPTUAL DEVELOPMENTS IN SCHOOL FINANCE

### Historical Perspective

Among the three levels of government in both Canada and the United States, primary responsibility for the provision of public education has rested with each of the provinces and states, respectively. Historically, the study and practice of school finance in Canada has been influenced and somewhat parallel to that found in the United States because of geographical proximity, cultural similarity, and adoption of similar organizational structures for providing public education at state and local levels. In large part, much of the state responsibility and authority for the management and operation of publicly supported schools has been shared with, and delegated to school districts under the direct control of locally-elected school boards. Generally, the bulk of school district revenues have been derived from two major services: (1) local property taxes, and (2) state grants-in-aid. While traditionally the major objective of state support for public education has been geared to enhancing the degree of educational opportunity provided at the local level, Wilenksy (1970:14) points out that this has often been "interpreted to mean the avoidance of unacceptable differences in the availability of educational services."

Since the turn of the twentieth century, a number of principles and theories of school finance have been advanced as means by which state aid to support public education might be conceptualized and examined on a continued basis. Some of the major principles and alternate models of state school support found in the literature are discussed below.

## Principles of State School Support

Throughout much of the literature in school finance, a number of principles have been enunciated and generally perceived as being basic to the development of alternate models of state school financing. While there are modifications or some variances in the listing of such principles, there appear to be at least five core principles embedded in most state school finance plans. Each of these principles is explicated below.

Equal Educational Opportunity. Concern for the provision of equal educational opportunity has been a dominant theme in the study and practice of school finance. Though the idea of equal educational opportunity has carried a favorable connotation, precise definition of the term remains somewhat "ambiguous and encompasses many complicated concepts"

(Fleischmann, 1973:53). Nonetheless, as the Phi Delta Kappa Commission on Alternate Designs for Funding Education (1973:9) has indicated, there is a strong belief that "State school finance plans should not create fiscal imbalances which deny equal educational opportunity."

Garms et al. (1978:21-24) outline three major conceptualizations of equal educational opportunity: (1) equal access to education, (2) equal educational treatment, and (3) equality of educational outcome. Equal access to education has been taken to mean that students must be provided with a minimum level of school resources, i.e., a foundation level, to ensure equality of educational opportunity. Equal educational treatment has been based on the premise that students differ widely in abilities and characteristics, from which it follows, that available school services should be tailored to each student's specific circumstances. By this definition, minimally adequate school services would at least include provision for special educational services for the learning disabled and handicapped as well as compensatory education for the disadvantaged. Equality of educational outcomes has stemmed from the observation that academic achievement is crucial for personal success and hence, equal student learning should be assured at least in terms of minimum or basic skills. By implication, schools should be responsible for achieving such minimal outcomes regardless of the resource level necessary.

To a large extent, incorporation of each of these separate, but related dimensions of equal educational opportunity in state school finance plans has taken the form of general recognition rather than complete, direct adoption because of at least three major constraints. First, there are limits to the amount of available funds which may be appropriated for support of public education. Second, a minimum level of education is difficult to define in terms of specific educational objectives and necessary program resources. Finally, there is a general lack of consensus with respect to appropriate measures and levels of student achievement.

While attempting to clarify the directions the school finance plan should take in Alberta, the Minister's Committee on School Finance (1975:4) preferred to view equality of educational opportunity as "equality of access of students to programs and services rather than equality of outcomes." The Committee further took the position that fiscal equalization among school jurisdictions was only a first approximation of equality of access. In their view, an equitable finance plan designed to enhance the notion of equality of educational opportunity has essentially two components: (1) an adequate foundation level of funding distributed on a common unit of need such as a pupil; and, (2) additional differentiated support levels based on local factors which bear on the program resources available such as local wealth and cost differences.

Equity of Tax Burden. Generally, economists have examined the question of equity in taxation from the standpoint of two main standards: (1) benefit, and (2) ability to pay. Benson (1978:271) distinguishes between each of these standards as follows:

> The benefit principle relates tax burden on the household to the amount of benefits received from government, while the principle of ability to pay relates tax burden to economic capacity. Under either principle, the tax instrument should provide 'equal treatment of equals.' Persons who are in relevant respects equal should be dealt with in approximately the same way.

The benefit principle has been associated with the long-standing rule of business that an individual, household, or corporation "should pay for goods and services according to the amount they use" (Brown, 1980:35). However, as Brown (1980:36) notes, this argument has been refuted in the case of a number of social services provided by government, especially those that relate to provision of elementary and secondary education. There has been political consensus, in large part, that benefits of receiving an education do not accrue solely to individuals, but to society as a whole. As Garms et al. (1978:19) indicate, education is one of the prime instruments through which society may promote and maximize the three strongly held values of liberty, equality, and efficiency. Consequently, and historically, the criterion of ability to pay has become the focal point of discussion when questions concerning equity of tax burden have been raised in school finance.

In general terms, ability to pay is interpreted to mean the economic well-being or standard of living enjoyed by the individual or corporate taxpayer. Brown (1980:37) identifies three basic measures of ability to pay: (1) income received, (2) assets or wealth possessed, and (3) income spent. Although income received, in particular, is viewed as one of the more important determinants of economic well-being, ability to pay in school finance has traditionally been based on assessed valuation of real property. Real property has been defined as "land and those improvements attached firmly to it" (Garms et al., 1980:133).

While the notion of "equal treatment of equals" is commonly accepted as a basic principle in school finance, the equitable treatment of unequals has been a much more complex and contentious issue. Setting aside problems associated with defining and applying criteria for determination of assessed valuation of real property, the degree to which state programs of school finance should make provision for equalization of local wealth has not been a clear-cut issue. Garms et al. (1978:201-207) point out, need equalization and cost equalization are two other dimensions which also should be assessed in relation to wealth equalization.

Simplicity of Design and Comparability. In order to ensure comparability from year to year for the purpose of assessing the impact of adjustments made to school finance programs, the Commission on School Finance in Saskatchewan (1976:33) emphasized that:

> The system should be straightforward and constant in application so that whatever formulas are used will produce information that is predictable and constant.

Basic computation of grant entitlements should be simple and number of adjustments small. The adequacy of basic rates should reflect average expenditures for the preceding year and make provision for rising costs that are anticipated due to inflation. While "save-harmless" provisions may be necessary during the phase-in period of any new grant system, efforts to encourage efficiency of operation should not be disregarded at the same time.

In commenting on the design of systems of state school finance, Garms et al. (1978:239-240) make the observation that greater emphasis should be placed on structural characteristics relating to actual distribution of revenues among the districts rather than on use of terms implying some ideal distribution such as power equalizing and pupil weighting. Some of the structural characteristics suggested by Garms et al.

(1978:240) that may be useful in assessing trends in school support at the state level are as follows:

1. Total state aid (including categorical aid) provided as a percentage of total state-local school revenue. In some cases, the ratio of state aid may in fact be more important than the form of the formula in the provision of local programs.
2. Amount of unequalized local taxation as a percentage of total state-school revenues. This descriptor would tend to indicate the effectiveness of expenditure or tax limits, as well as of the extent of equalization provided through the state program of school support.
3. The coefficient of variation (standard deviation divided by the mean) of equalized expenditures per weighted pupil. Generally, the value of the coefficient should be larger where an effective power equalization program was in effect than in the case of a foundation-type program.
4. The coefficient of variation of equalized expenditures per unweighted pupil. In combination with the preceding measure, this descriptor would tend to gauge the extent to which weighting programs were effective.
5. The coefficient of variation of local property tax rates for school purposes. This measure would indicate the degree of differences in local fiscal effort among school districts.
6. State categorical aid as a percentage of total state-local revenue. This measure would show the extent to which available state funds were being "earmarked" rather than provided as general aid from year to year.

Local Autonomy. Basic to the development of a school finance plan at the state level is the attention given to local autonomy. According to Cohen et al. (1973:21), the issue of local autonomy is perhaps the single most important question raised in discussions of educational finance reform because it relates directly to the preservation of political identity of local communities. Cohen et al. (1973:21) make the following comment:

> Local citizen control over school officials and the setting of spending levels are considered the few remaining areas of effective citizen participation in education and government generally.

The Minister's Advisory Committee on School Finance in Alberta (1975:6) expressed the following view with respect to local fiscal autonomy:

> Local school jurisdictions should have the opportunity to raise money for the financing of public education when such financing is not provided for in a provincial plan of school support.

While most states delegate authority to school boards to supplement the amount of state-aid received through taxation of local property, two main issues often arise with respect to local fiscal autonomy. First, is the matter related to the degree to which available state funds are apportioned in the form of general-purpose grants as opposed to those which are allocated only as categorical grants. Second, is the matter related to limits that might be imposed by the state on local spending or taxation for school purposes. The Commission on School Finance in Saskatchewan (1976:35) made this observation with respect to both these issues:

> Trustees feel strongly that the unconditional grant and the authority to determine the rate of local property tax are essential to the maintenance of local autonomy and initiative in education.

In addition to issues raised concerning the types of state-aid available and extent of local taxation permitted or spending allowed, there also has been some contention that substantial, increased state funding (e.g., in full-state funding schemes) interferes with local autonomy. However, as an Urban Institute study (cited in Cohen et al., 1973:21) has shown, there appears to be "no consistent correlation between the percentage of state funding and the degree of local autonomy."

Stimulation and Control. If it is acknowledged that the state government has constitutional responsibility for education, it follows that a central authority

> ...should provide leadership toward the improvement of the educational services, and, to this end, should provide monies, over and above the level of the (state) province's financial plan, for development grants and in support of selected programs (MACSF, 1975:7).

However, as the Commission on School Finance in Saskatchewan (1976:35) has pointed out, once experimental and trial stages are past, such programs should fall into place without further special assistance and be provided at local discretion. However, as this Commission (1976:35) also indicated

> ...the province has a further responsibility to exercise control beyond the initial and experimental stages of school programs if boards should choose to support programs below the level considered mandatory in the interests of the province or nation as a whole.

## Alternative Models of State School Support

According to Garms et al. (1978:187-201), the following five basic approaches to state school support have been conceptualized as a means to reduce the impact of local wealth on school district expenditure levels: (1) flat grant programs, (2) foundation programs, (3) percentage equalizing, (4) power equalizing, and (5) full state funding. The basic premise and distinguishing features of each of these alternative models of school finance are outlined below.

Flat Grant Programs. Historically, when state governments began to provide support for school purposes at the local level, grants took the form of equal amounts of money to each community, regardless of the number of pupils or ability to raise money locally. Subsequently, state funds were distributed on the basis of equal amounts per pupil to each district. The assumption was made that a minimum level of education should be guaranteed to every pupil and "that the state in its wisdom can determine the costs of this minimum education and will allocate that dollar amount as a flat grant" (Garms et al., 1978:188). It was held that educational services provided beyond this minimum level should be paid out of local revenues as the benefits of such education accrued to the individual concerned or the community in which he or she resided.

As early as 1905, Ellwood P. Cubberley (cited in Garms et al., 1978:188), one of the first to write persuasively of the problems of school finance, expressed concern about the practice of apportioning available state funds to local school districts on the basis of equal dollars per pupil. Since per pupil grants seemed to favor the school centres where larger class sizes were possible, Cubberley's solution was to allocate to each district an amount for each teacher employed. Cubberley (cited in Johns, 1973:160-161) proposed the following theory of state support:

> Theoretically all the children of the state are equally important and are entitled to have the same advantages; practically this can never be quite true. The duty of the state is to secure for all as high a minimum of good instruction as is possible, but not to reduce all to this minimum; to equalize the advantages to all as nearly as can be done with the resources at hand; to place a premium on those local efforts which will enable communities to rise above the legal minimum as far as possible; and to encourage communities to extend their educational energies to new and desirable undertakings.

Johns (1973:161) summarized Cubberley's principles of state support as follows:

1. That due to the unequal distribution of wealth, the demands set by the states for maintaining minimum standards cause very unequal burdens. What one community can do with ease is often an excessive burden to another.
2. That the excessive burden of communities borne in large part for the common good should be equalized by the state.
3. That a state school tax best equalizes the burdens.
4. That any form of state taxation for schools fails to accomplish the ends for which it was created unless a wise system of distribution is provided.

These principles of state school support led to the formulation of the foundation program concept first described in 1923 by George D. Strayer and Robert M. Haig (cited in Garms et al. (1978:190)).

Foundation Programs. In large part, the fiscal limitation of state governments to generate sufficient revenue on their own to finance flat grant programs adequate to provide minimum levels of education locally, led to the formulation and acceptance of the foundation program concept. George D. Strayer and Robert M. Haig (cited in Johns, 1973:162) credited with the initial explication of the foundation program concept in 1923, set forth the following argument in support of the approach:

> There exists and has existed for many years a movement which has come to be known as the 'equalization of school support.' These phrases are interpreted in various ways. In its most extreme form the interpretation is somewhat as follows: The state should insure equal education facilities to every child within its borders at a uniform effort throughout the state in terms of the burden of taxation; the tax burden of education should throughout the state be uniform in relation to taxpaying ability, and the provision for schools should be uniform in relation to the educable population desiring education. Most of the supporters of this proposition, however, would not preclude any particular community from offering at its own expense a particularly rich and costly educational program. They would insist that there be an adequate minimum offered everywhere, the expense of which should be considered a prior claim on the state's economic resources.

As Garms et al. (1978:190) have noted, the proposed system of state school support had the "effect of capturing a portion of the local property tax for state purposes, without that being openly evident." The basic premise of the foundation program concept, just as with the flat grant program approach, is that the state would specify a dollar amount per student that each district would receive to provide a mimimum level of education (i.e., foundation level), but with one major exception. Under the foundation program concept, a state normally would compute a district's contribution at a fixed rate on the assessed valuation of local property and provide only the difference between the amount computed and the guaranteed expenditure level. As Garms et al. (1978:192) note, a flat grant scheme "is simply a special case of the foundation program, in which the required local tax is zero."

Although Strayer and Haig were first to conceptualize the basic notion of a foundation program, it was Paul Mort (cited in Johns, 1973:163) that developed the technology for implementing the concept which was adopted for use in some forty-two states by 1971-72. In operationalizing the concept, Mort (cited in Meek, 1979:32) addressed the issue of "satisfactory minimum offering" on the basis of a "weighted pupil" measure as a way of allowing for differentials in pupil needs. Using average expenditure data accumulated on "typical" school districts, Mort (cited in Meek, 1979:33) found that the average high school pupil cost was twice that of an elementary pupil. The end result has been that weighting factor coefficients included in foundation-type programs of school support generally reflect "average practice" in terms of program per pupil costs.

In 1971, Jones (cited in Meek, 1979:33-34) summarized Mort's concept of a foundation program and his sponsorship of local program initiatives by consolidating them to six distinct phases listed below.

> Phase 1. A given level of educational service and given level of state school support are in existence.
>
> Phase 2. One or more local school districts perceive a need to provide some new educational service beyond the state minimum. If necessary, they tax themselves above the amount required by the state to provide this educational service.
>
> Phase 3. The adaption developed in the lighthouse districts is disseminated to other localities. They too raise their local tax rates to institute the adaptation.
>
> Phase 4. The adaptation gradually becomes accepted practice throughout the state. Eventually, the state provides for the adaptation in all local districts, possibly through the institution of a categorical state grant for the purpose.
>
> Phase 5. The adaptation is required by state law, and state financial support for the adaptation is incorporated into the Strayer-Haig minimum foundation program.

> Phase 6. The extra state support allows the original lighthouse districts to reduce their tax burdens; hence, they become more receptive to the possibility of still newer adaptations.

Percentage Equalizing. The concept of percentage equalizing is not a new concept. In 1922, about the time the Strayer-Haig foundation program concept was advanced, Harlan Updegraff and Leroy A. King (cited in Garms et al., 1978:195) urged the adoption of percentage equalizing in state systems of school finance. In general terms, it was proposed that the state should share in the financing of education by providing a fixed percentage of each school district's expenditures, with the overall amount of education provided to be decided at the local level.

The mathematical expression, noted by Garms et al. (1978:193), used to determine the state "aid ratio" is usually written in the form indicated below:

$$\left(1 - f\,\frac{Yi}{\bar{y}}\right)$$

where Yi is the assessed valuation per pupil of the district:
$\bar{y}$ is the assessed valuation per student of the state as a whole, and
f is a scaling factor that is usually set somewhere between 0 and 1.

While the flat grant and the foundation plan have the same philosophical underpinning (i.e., each pupil should receive a minimum level of education and the state should guarantee this on an equal basis), percentage equalizing has a different philosophical base described by Garms et al. (1978:193) as follows:

> Essentially, it defines equity as access to education on the same terms, and it also holds that the amount of education to be purchased by a community should be determined by that community.

A practical problem associated with implementation of percentage equalizing plans has been the need to place fiscal limits on the expenditure per pupil that will be equalized by the state. Just as the flat grant may be considered a special case of the foundation plan, Garms et al. (1978:196) note the following:

> ...the foundation plan is simply a special case of the percentage equalizing plan in which the budget to be participated in by the state is set at a particular figure instead of being allowed to fluctuate.

Power Equalizing. The concept of power equalizing has the same philosophical base as percentage equalizing, i.e., the ability to raise money should be equalized, but the decision as to the amount raised should be left to local districts. Power equalizing was formally enunciated by John E. Coons, William H. Clune, and Stephen D. Sugarman (1970) in their book Private Wealth and Public Education, which argued strongly that public education expenditures should not be a function of local wealth, but of the wealth of the state as a whole. According to Garms et al. (1978:197), "this formed a substantial part of the legal reasoning exhibited in Serrano and other school finance 'equal protection' cases."

In operational terms, power equalizing involves the establishment of a schedule of tax rates to be imposed locally on the assessed valuation of real property, with an amount per pupil guaranteed by the state to a district for each level of tax. While power equalizing seems identical to percentage equalizing, Garms et al. (1978:199) suggest that:

> ...power equalizing is more general than percentage equalizing because it is not necessary to have a linear schedule that is implied by the guarantee of an amount per mill per student.

Hence, percentage equalizing may be viewed as a special case of power equalizing.

Full State Funding. According to Garms et al. (1978:199-201), full state funding was first espoused by Henry C. Morrison in 1930 with the basic intent being that pupils in each district, other things being equal, would be recipients of equal monetary provision supported by statewide taxation, including property taxes at the local level. As the Fleischmann Commission Report (1973:63) pointed out, under full state funding:

> The state shall determine a defensible basis of distributing money to school districts. Equal sums of money shall be made available for each student, unless a valid educational reason can be found for spending some different amount.

By not allowing local supplementary requisitions to be levied, problems related to tax and expenditure discrepancies among districts may be overcome as evident in the practical application of other plans of state school support. However, as Garms et al. (1978:201) suggest, the high degree of equity envisioned under full state funding may have a net result of necessary, increased state monitoring of individual educational programs provided locally since students in different programs generate different amounts of state money. As a consequence, this may take some of the initiative away from local school districts and their officials.

From a philosophical perspective, full state funding tends to be much closer to that of the flat grant and foundation plans than it is to the percentage and power equalizing plans. Garms et al. (1978:200) support this point of view as follows:

> One merely specifies that no local taxation is allowed (in the case of the flat grant program), or that the district may only tax at the required rate (for the foundation program).

## RELATED RESEARCH FINDINGS AND ISSUES

This section discusses some of the related research findings and issues that pertain to various measures of demographic, wealth, fiscal effort, revenue, and expenditure variables examined in the study.

### Population Shifts and Declining Enrolment

Population shifts from rural to urban areas as well as from inner city cores to suburban areas, combined with continued evidence of enrolment declines, have been the major demographic changes of the last decade (Meek, 1979:74; Odden, 1978:146). In a recent study by Meek (1979:179), it was found that in the period extending from 1970 to 1974 school boards in Alberta were not able to adjust expenditures downward to match declining-enrolment revenue losses. This study also showed that smaller jurisdictions and those where the district size exceeded 4,500 pupils were less able to reduce expenditures in the face of the same percentage of declining-enrolment revenue losses.

### Size of School Districts

In a review of the research that has been done with respect to the optimal size of school districts, Garms et al. (1978) and Webb (1979) make the observation that most studies related to this question have examined cost-size relationships to determine the extent to which economies of scale operate in the educational enterprise. Generally, the response to the question of what should be the minimum, maximum, or optimum size of school districts (or even schools) still remains unresolved. However, as Hickey (cited in Webb, 1979:343) has aptly pointed out:

> The obvious conclusion...is that size must be viewed as a variable and not as an absolute factor. Situational variables are strong and may profoundly influence the size/quality relationship in a district.

If the assumption is accepted that each school district within a state has a legitimate reason for its existence, then the notion of keeping educational program disparities and fiscal inequities amongst such districts to reasonable levels of tolerance becomes important in the design of state school finance plans.

Garms et al. (1978:94) note that a number of studies have shown "significant economies of scale up to about 1,500 to 2,000 students in a district and significant diseconomies of scale when districts are comprised of more than 20,000 students." G. Alan Hickrod (cited in Garms, 1978:94) found that the greatest efficiency was achieved, amongst districts studied in Illinois, where the average daily attendance was about 2,432. These findings would seem to indicate that school system size is an important variable to consider in both the formulation as well as evaluation of the distributional impact of various forms of state school support at the local level.

## Wealth and Fiscal Effort

With the realization that the burden of financing education is heavier for some districts than for others because of differences in local wealth, the means by which states obtain and distribute fiscal resources for support of public education are now being changed. As Augenblick (1979:1-2) has noted, some form of a fiscal equalizing component has been added to a growing number of state school finance systems such that less wealthy districts have received more state support than very wealthy districts.

Although the standard measure of district wealth has been assessed valuation per pupil, Odden (1977:356) notes that two criticisms of the measure have been leveled and alternate measures have been proposed. First, it is contended that assessed valuation per pupil is a biased measure. The argument has been put forth that assessed valuation per capita should be used instead since it is biased neither for nor against educational services and provides a neutral measure of the ability of any given area to finance all local governmental expenditures from property taxation, educational or otherwise. The second criticism relates to the fact that property value is no longer an accurate measure of wealth for either school districts or individuals. Income, on the other hand, may not only be a better measure of district wealth but also may be more important in explaining certain aspects of fiscal behavior. Although these two alternate measures of wealth have been proposed, Odden (1977:359) makes the observation that 37 states have continued to use assessed valuation per pupil as the measure of local wealth in their school finance systems.

## Resource and Expenditure Differences

The notion of "average" per pupil cost has been an important consideration in the establishment of support levels in state school finance systems. To a large extent, it has been assumed that total operational revenues received by a district (i.e., those excluding any capital or debt servicing grant entitlements) are equal to total operational expenditures made, except for accumulated deficits or surpluses. Generally, it is common practice in state financial reporting and accounting systems to break down total revenues according to source and to require that total expenditures be accounted for in terms of use of revenues received. What sometimes is overlooked in analyses made of state equalization efforts is the rate and extent to which districts make transfers from the current account (i.e., the operating revenue fund) to the capital account (i.e., the capital fund). Carroll (1979:22) makes the following observation:

> All states preclude transfers from capital account to current account, but most permit transfers from current account to capital account.

Thus, the choice between revenue-orientated measures and expenditure-orientated measures may be of significance in the analyses of state support should the rate at which districts transfer funds from the current to capital account be related to their per pupil revenues.

## Resources Costs and Equity

While state efforts have been made to improve the equity with which educational funds are distributed to local school districts, Chambers (1980:262) has pointed out that:

> ...these efforts to equalize should not be limited to improving the distribution of nominal differences in school spending, but rather should be directed toward improving the distribution of 'real' educational services. Indeed, from this perspective, some nominal variations in school spending may be justified on the basis of differing needs of student populations and uncontrollable variations in the prices of school resources.

Taking the argument somewhat further, Matthews (1979:334) contends that adjusting funding formulas to compensate for cost differences without consideration of program levels provided may, in fact, magnify inequities rather than move toward equality of educational opportunity. In some instances, districts may be successful in receiving a disproportionally higher level of state aid because of a variety of other factors such as identifying pupils with special needs, securing services of specialist teachers, meeting facility requirements for categorical programs, and developing special educational programs; while others are not as able to secure such funds.

## Levels of Program Offering

According to Augenblick (1979:7), the move to incorporate some recognition of minimum or basic levels of education in school finance systems has resulted from at least two major perspectives. The first concern relates to the public demand for increased accountability with regard to the utilization of governmental resources for education and the need to develop appropriate measures to gauge the effectiveness and efficiency of school and system operations. The second concern centres around the fact that a number of state school finance systems have been found by the courts to be a violation of constitutional provisions relating to ensuring some degree of equal educational opportunity to all citizens regardless of factors related to wealth or location.

While states have tended to spell out program requirements for hours of instruction, days and length of the school year, and types of curriculum to be taught, the overall nature and extent of variation in district program levels has not been extensively reported upon. However, in a study completed in 1968 by Thomas (cited in Johns, 1977:499) of educational programs provided in both elementary and high schools in different types of districts, it was found that program variations were primarily due to variation in fiscal resources. In later studies conducted by Barro and Carroll in 1975, and Kirst in 1976 (cited in Carroll, 1979:33) it was shown that:

> ...about 80 per cent of each new state dollar was used to provide additional services for students; although about 20 per cent of each new dollar was used to raise teachers' salaries, the raises were in general less than those of other districts in the region.

## ANALYTICAL FRAMEWORK

Recently, there appears to be increasing reliance on data analysis to identify imperfections in state systems to raise and distribute resources for public education. The assumption has been made that, to some extent, existing inequities are systematic rather than unique to individual districts. As Moskowitz and Sherman (1979:323) point out, the documentation of such claims is facilitated through "an investigation of the relationships among a number of key finance and demographic variables." The four major types of fiscal variables which have been examined are as follows: (1) property wealth, (2) equalized tax rates, (3) expenditures, and (4) state aid. Generally, it has been shown that:

1. A wide range of values in property wealth, tax effort, and expenditures exists across a state.
2. School district wealth (defined as equalized property valuation per pupil) is the primary determinant of a school district's expenditures for education.
3. Property-poor districts which exert above average tax rates are able to provide only below average expenditures.
4. State equalization aid, often intended to compensate for wealth-based expenditure dispari-

> ties, is insufficient to fully equalize access to educational revenues (Moskowitz and Sherman, 1979:324).

According to Hickrod and Sabulao (1969:5), research efforts "are undertaken because individuals have unanswered questions that have arisen from their reading, and from their observation of society which surrounds them." This exploratory study was undertaken for two main purposes. First, to determine the nature and extent of variation that might exist with respect to district curricular program levels as measured by the amount of instructional time provided in major subject areas at individual grade levels in Alberta school systems. Second, to determine the extent of variation which could be accounted for in terms of a set of selected measures of demographic, wealth, fiscal effort, revenue, and expenditure related variables using stepwise multiple linear regression analysis.

## SUMMARY OF CHAPTER 2

This chapter has presented a review of the literature considered of importance to the nature of the problem statements investigated in the study as well as the analytical framework adopted to complete the study. The review of literature focussed on: (1) major conceptual developments in school finance, and (2) a number of research findings and issues related to the broad categories of predictor variables examined in the study.

In the first part of the review of literature, five core principles embedded in most state school finance plans were identified and five alternate models of state school support were outlined. The principles of state school support discussed were as follows: (1) equal educational opportunity, (2) equity of tax burden, (3) simplicity of design and comparability, (4) local autonomy, and (5) stimulation and control. The alternate models of state school support described were as follows: (1) flat grant programs, (2) foundation programs, (3) percentage equalizing, (4) power equalizing, and (5) full state funding. The final part of the review of literature dealt with related research findings and issues that related to each of the following: (1) population shifts and declining enrolment, (2) size of districts, (3) wealth and fiscal effort, (4) resource and expenditure differences, (5) resource costs and equity, and (6) levels of program offering.

The analytical framework adopted for the study consisted of using stepwise multiple linear regression to investigate the relationship between district curricular program levels in Alberta school systems and a number of selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables.

# Chapter 3

## RESEARCH DESIGN AND PROCEDURES

This chapter contains a description of the research design and procedures used in the study. In brief, the study consisted of three major phases:

1. Describing the nature and extent of variation found in district program levels (DPI's) in major subject areas, grades one through twelve, as shown in Appendix A;
2. Computing district values for each of the 32 predictor variables examined in the study as reported in Appendix A; and,
3. Determining the extent of variation which could be accounted for in each of the DPI's by the set of predictor variables examined in the study as indicated in Appendix B.

These are dealt with separately in each of the sections which follow.

## CONCEPTUALIZATION OF THE DISTRICT PROGRAM INDEX (DPI)

### Introduction

The need to identify an appropriate means by which curricular program levels in Alberta schools could be described has been of concern in school finance for some time. The Minister's Advisory Committee on School Finance in Alberta (1975:25) made this observation:

> ...At the present time, the programs of study provide a partial outline of 'what ought to be.' Without a description of 'what is,' the definition of the educational 'gap' and any subsequent grants

> designed to minimize this difference, become an
> educated guess at best.

In Alberta, the curricular program requirements mandated province-wide by the Minister of Education vary quite substantially at each of the elementary, junior high and senior high levels along two major dimensions:

1. In the degree of content specification for both required and elective subjects; and,
2. In the amount of scheduled instructional time which is to be provided in required and elective subjects taught.

At the elementary level, students are required to receive instruction in designated core subject areas but no specific regulations or guidelines are provided with regard to instructional time requirements. At the junior high level, minimum time allotments for instruction in core subjects have been provided through regulation. However, guidelines only are provided for allotments of instruction time in elective courses. At the senior high level, "credit" values have been assigned to each subject which may be offered. Although variable credits have been assigned to each of a number of courses, it has been required that a total of at least 25 hours per credit be scheduled for purposes of instruction.

At present, no study has been made of the nature and extent to which students in Alberta have access to major curricular programs (i.e., excluding special education programs) at all grade levels in individual school jurisdictions. However, an earlier study by Downey (1965) reported the total credit offering in senior high schools across the province. In general, this study showed that high schools with fewer than 200 students offered inadequate programs (Downey, 1965:57).

Although no provincial study has been made of curricular programs offered in all schools, school evaluation reports prepared by the Department of Education have made reference to various subjects taught in individual schools. Comparisons also have been made of school program levels within individual school jurisdictions with respect to (1) the nature of subjects taught, and (2) the number of course offerings or instructional time provided within major subject areas. A significant part of the research problem addressed in this study related to the development of a quantitative measure which could be employed to describe curricular program levels in Alberta school jurisdictions from information available in the data base maintained by the Department of Education.

## Calculation of the District Program Index

According to Wiley (1977) and Kemmerer (1978), the allocation of instructional time has been assumed to be of importance in determining student outcomes. Although findings in this respect have been inconclusive, student access to curricular programs has been viewed as one of the prerequisites to enhancing equal educational opportunity (MACSF, 1975:4).

In order to complete this study, a District Program Index (DPI) was developed as a means to aggregate school curricular program offerings in major subject areas at each grade level on a district-wide basis. Following consultation with senior officials of Alberta Education, it was considered that the calculation of the DPI should include each of the following two factors:

1. The total amount of scheduled instructional time provided in individual courses offered within a major subject area at each grade taught as a measure of school program level;
2. The grade enrolment at each school within a jurisdiction as a measure of student access to a curricular program offering.

It also was considered that DPI's should be expressed in credit-equivalents where one credit represented 25 hours of scheduled instructional time per year. In its most general form, a DPI may be expressed in mathematical terms as follows:

$$\mathrm{DPI} = \frac{\sum_{s=1}^{n} \sum_{c=1}^{m} T_{sc} E_s}{\sum_{s=1}^{n} E_s}$$

where $E_s$ = enrolment for grade under consideration in school s
$T_{sc}$ = scheduled instructional time for course c in school s
n = number of schools in district
m = number of courses in subject area

To compute the DPI for language arts at the elementary level, for example, the DPI for language arts at each of the elementary grade levels was determined and then added together. To arrive at the DPI for an individual grade level, the separate DPI's calculated for each of the major subject areas offered at the grade level were added together. Calculation of the DPI is illustrated in Appendix A.

Subject Area Groupings. The major subject area groupings selected for the study were in accordance with those outlined in the Junior-Senior High School Handbook (1978-79) issued under the authority of the Minister of Education pursuant to Section 12 of The School Act (1970). The grade levels for which each of these subjects area groupings were applicable is summarized below:

| Subject Area | Grades Applicable |
|---|---|
| Language Arts | 1-12 |
| Mathematics | 1-12 |
| Social Studies | 1-12 |
| Science | 1-12 |
| Personal Development | 1-12 |
| Fine Arts | 1-12 |
| Second Languages | 1-12 |
| Business Education | 7-12 |
| Home Economics | 7-12 |
| Industrial Ed. (General) | 7-12 |
| Industrial Ed. (Vocational) | 10-12 |

DPI's Examined in the Study. Although 176 DPI's were calculated to complete the study, only those indicated below were directly reported upon. The criterion variable number assigned to each DPI examined in the study is given below:

1. Subject Areas DPI's Examined:

| | Elementary | Jr. High | Sr. High | All Grades |
|---|---|---|---|---|
| Language Arts | C7 | C11 | C15 | C16 |
| Mathematics | C23 | C27 | C31 | C32 |
| Social Studies | C39 | C43 | C47 | C48 |
| Science | C55 | C59 | C63 | C69 |
| Personal Development | C71 | C75 | C79 | C80 |
| Fine Arts | C87 | C91 | C95 | C96 |
| Second Languages | C103 | C107 | C111 | C112 |
| Business Education | | C116 | C120 | C121 |
| Home Economics | | C125 | C129 | C130 |
| Industrial Ed. (General) | | C134 | C138 | C139 |
| Industrial Ed. (Vocational) | | | | C144 |
| Other Subjects | | C155 | C143 | C160 |
| TOTAL | C167 | C171 | C175 | C176 |

2. Grade DPI's Examined:

1 - C161
2 - C162
3 - C163
4 - C164
5 - C165
6 - C166
7 - C168
8 - C169
9 - C170
10 - C172
11 - C173
12 - C174

The mean and standard deviation for each of the above criterion variables (DPI's) is found in Appendix A.

Strengths and Limitations of the DPI. In summary, the DPI is a means by which the total amount of scheduled instructional time provided in major subject areas for each grade at the school level may be quantified on a district-wide basis taking into consideration the number of students that have access to the program. Its major strengths are as follows:

1. The DPI is additive, i.e., individual subject area DPI's may be added together at particular grade levels or across grade levels.
2. The DPI is a standard measure of instructional time provided in schools that may be of direct use in monitoring district program levels in various subject areas or grade levels. In essence, it provides a measure of the availability of purchased resources at the district level when questions related to the distribution of revenues for schooling may wish to be considered (Kemmerer, 1978:1).
3. The DPI may be calculated from data readily acquired from the school program information stored in files and records maintained by the Department of Education.

The major limitation of the DPI is that it has an enrolment bias. While the DPI reflects student access to curricular program availability in a general sense at each school within a school jurisdiction, it does not include actual participation rates in individual courses within a given subject area.

## PREDICTOR VARIABLES EXAMINED IN THE STUDY

Five major categories of predictor variables were examined in the study. These categories were as follows: (1) demographic characteristics, (2) wealth related measures, (3) fiscal effort related measures, (4) total revenues from provincial grants and other sources, and (5) selected district expenditures. A brief description of the nature of each predictor variable selected within each of the above categories is given below. The identification code used in the analysis for each of these measures is shown in parentheses.

### Demographic Characteristics

According to Sparkman (1977:346-347), the cost of educational services and the amount of local support provided for education have each been shown to be related to a variety of demographic characteristics. Since school jurisdictions in Alberta differ with respect to a number of demographic characteristics, several of these were selected for examination in the study. Those selected were as follows: (1) district size, (2) regional location, (3) jurisdiction type, (4) degree of urbanization, (5) sparsity of population, and (6) extent of school building utilization.

District Size. The following four measures of district size were examined in the study:

1. Elementary enrolment (P21),
2. Junior high enrolment (P22),
3. Senior high enrolment (P23), and
4. Total enrolment (P24).

As Garms et al. (1978) and Webb (1979) have indicated, a number of studies in school finance have focussed on determining cost-size relationships. Generally, economies of scale have been associated with larger district size. However, the relationship between the extent of curricular program offering and district size has not been reported upon in any detail.

Regional Location. An attempt was made in this study to ascertain whether regional location of school jurisdictions related to any of the variation found in district program levels. For purposes of the analysis, the following service areas assigned to Regional Offices of Alberta Education were considered as separate geographical areas:

1. Grande Prairie (R1),
2. Edmonton Rural North (R2),
3. Edmonton Rural South (R3),
4. Red Deer (R4),
5. Calgary Rural (R5),
6. Lethbridge (R6), and
7. Large Urban - Edmonton and Calgary (R7).

Regions one through six also are coterminous with the Zone Associations established provincially by the Alberta School Trustees' Association. In the analysis, region was considered a dichotomous variable and presence was equated as one and non-presence as zero.

Jurisdiction Type. In Alberta, local school authorities having elected boards of trustees are classified as public or separate school districts. Public school districts include both school divisions and county boards of education. During the 1978-79 school year, about 18 percent of the total pupil population in Alberta attended separate schools. Except in the larger urban areas, separate school districts are usually much smaller in size and have a lower equalized assessment per pupil. In the analysis, jurisdiction type (JUR) was considered a dichotomous variable where public school districts were equated as zero and separate school districts were equated as one.

Degree of Urbanization. As Meek (1979:74) and Odden (1978:146) have pointed out, the population shift from rural to urban areas has been one of the major demographic changes of the last decade. Recognizing that further consolidation of educational services outside the large urban centres of Alberta has remained relatively unchanged during this time, an attempt was made in this study to discern if the urban pupil ratio had impact on district program levels. The urban pupil ratio (P2) was defined as follows:

$$\frac{(\text{Total Enrolment}) - (\text{Eligible Rural Pupils Transported})}{(\text{Total Enrolment})}$$

Eligible rural pupils transported referred to those rural pupils for whom a school jurisdiction was eligible to receive transportation allowances provided under the School Foundation Program Regulations.

Sparsity of Population. In this study, sparsity of pupil population was considered as a possible factor contributing to additional local costs for educational programs provided because of diseconomies of scale resulting from smaller pupil numbers. Sparsity of pupil population was measured by the following ratio:

$$\frac{\begin{pmatrix}\text{Daily Rural Route Eligible Distance} \\ \text{for School Bus Fleet}\end{pmatrix} \times \begin{pmatrix}\text{Total No. of Eligible Pupils} \\ \text{Transported}\end{pmatrix}}{\text{Total Enrolment}}$$

Extent of School Building Utilization. The extent to which school facilities are used to capacity had been of major concern to policy makers at both local and provincial levels for some time. Generally, it is acknowledged that operation and maintenance costs per pupil tend to increase more rapidly the greater the proportion of available student places within a school jurisdiction. For purposes of this study, the extent of school building utilization within a jurisdiction was defined as the following ratio:

$$\frac{\text{Total Enrolment}}{\text{Total Available Student Places}}$$

The assumption was made that lower school building utilization ratios were more likely the result of enrolment decline rather than "over provision" of school facilities.

## Wealth Related Measures

The tax burden of financing education is heavier for some districts than others because of differences in local wealth. Generally, the standard measure of district wealth has been the assessed valuation per pupil (Odden, 1977:356). In this study, the following two contrasting measures of wealth were examined: (1) the amount of equalized assessment per pupil (P4), and (2) the unsupported debt mill rate levied to cover previous capital costs (P6).

*Equalized Assessment Per Pupil*. In Alberta, procedures for assessment of real property are standardized on a province-wide basis. Each year the provincial "Assessment Equalization Board" calculates the equalized assessment for each municipal tax collecting authority based mainly on the "live" or actual assessment for the previous year. From this listing, the total equalized assessment for each school district is determined. In 1978, a Supplementary Requisition Equalization Grant was paid to less wealthy districts on the first 13.2 mills levied. Since equalized assessments per pupil varied substantially across the province and most districts levied a mill rate of over 20 mills (i.e., based on the equalized assessment), an attempt was made in this study to ascertain the impact of differences in local taxable wealth on district program levels. A limitation of using equalized assessment per pupil as a measure of taxable wealth in any given year is that actual property taxes paid are based on current assessments and hence, the tax burden will be less for growth areas and more for those areas experiencing economic decline.

Unsupported Debt Mill Rate. Because of variations in price, some districts are faced with larger capital costs to provide needed facilities and equipment. As a result, such districts find it necessary to use a greater proportion of the supplementary requisition levied to repay unsupported debenture and short-term loan payments. In this study, the unsupported debt mill rate based on the equalized assessment of districts was used as a measure of the additional tax burden experienced by some districts in providing local educational services. A weakness of this measure is that average unsupported capital costs to be paid by districts in any given year is dependent to some extent on the debt retirement period selected by individual boards.

## Fiscal Effort Related Measures

As Sparkman (1977:340) has noted, fiscal effort may be viewed from at least the following three perspectives:

> ...(a) a measure of tax performance as determined by comparative tax collections among different taxing jurisdictions; (b) a measure of tax severity showing the tax burdens falling upon taxpayers by relating taxes paid to a measure of taxpaying ability, usually income; or the (c) the relative sum of fiscal capacity indicating the degree of utilization of available tax sources.

In this study, three alternate measures of fiscal effort based on the concept of the relative use of tax capacity (i.e., local wealth) were examined:

1. Net supplementary requisition mill rate (P5). ("Net" indicates that provincial grants received in lieu of taxes on electric power lines and pipelines were subtracted).
2. Ratio of supplementary requisition levied to total operational revenue (P9).
3. Amount of supplementary requisition levied per pupil (P20).

In summary, each of these selected measures addressed the following aspects of fiscal effort:

1. The net supplementary requisition mill rate indicates district tax rates set irrespective of the amounts of local wealth available for taxation purposes.
2. The ratio of supplementary requisition levied to total operational revenue indicates the overall proportion of educational services provided directly through local funding.
3. The amount of supplementary requisition levied per pupil provides some indication of additional average pupil costs at the local level over and beyond all other revenue sources for individual districts.

## Revenues from Provincial Grants and Total Sources

The operation of public and separate school jurisdictions in Alberta is dependent mainly on two major revenue sources outlined below:

1. A provincial system of school support in the form of largely general-purpose grants outlined in the School Foundation Program Fund (SFPF) regulations and special-purpose grants contained in the School Grants Regulations (SGR). Since 1971, SFPF grants have been made up of weighted per pupil grants for instruction, allowances to offset administration and transportation costs, and recognized capital debt retirement grants (excluded from examination in this study). In the years 1977 and 1978, SGR grants were made up of 23 special-purpose type grants ranging from support of special and vocational education to declining enrolment and supplementary requisition equalization grants.
2. A local supplementary requisition levied on the assessed valuation of real property.

In the years 1977 and 1978, school board expenditures in the province were supported as follows:

| | 1977 (%) | 1978 (%) |
|---|---|---|
| 1. Provincial Contribution | | |
| SFPF | 57.6 | 55.4 |
| SGR and other grants | 8.2 | 8.6 |
| TOTAL | 65.8 | 64.0 |
| 2. Local Contribution | | |
| SFPF | 8.7 | 9.0 |
| Supplementary Requisition | 20.7 | 24.4 |
| TOTAL | 29.4 | 31.4 |
| 3. Other Revenues | 4.8 | 4.6 |

The revenue measures examined in this study consisted of the following:

1. Ratio of SFPF grants received to total operational revenue (P7).
2. Ratio of SGR grants received to total operational revenue (P8).
3. Total SFPF grants received per pupil (P18).
4. Total SGR grants received per pupil (P19).
5. Total operational revenue per pupil (P10).

Since the study was of an exploratory nature, no effort was made to differentiate amongst the variety of grants made available under each of the SFPF and SGR grant structures. However, an attempt was made to examine the overall impact of each of these major grant categories on district program levels.

## Selected District Expenditures

Since 1974, Alberta has had a standardized, provincially-mandated Program Accounting and Budgeting (PAB) system which consists of thirteen standard expenditure categories. For purposes of this study, measures of the following seven major expenditure categories were selected:

1. Per pupil expenditure for elementary instruction (P11).
2. Per pupil expenditure for junior high instruction (P12).
3. Per pupil expenditure for senior high instruction (P13).
4. Per pupil expenditure for administration (P14).
5. Per pupil expenditure for operation and maintenance (P15).
6. Per pupil expenditure for transportation (P16).
7. Total operational expenditure per pupil (P17).

As indicated, both instructional and non-instructional categories of expenditures were examined in the study to determine their relationship, if any, to district program levels.

# ANALYSIS OF DATA

## Nature and Source of Data Used

The data used in this study were drawn from records maintained by the Alberta Department of Education using information supplied by public and separate school jurisdictions in the province. Financial records used covered the 1977 and 1978 fiscal years, and the school program information used covered the 1978-79 school year.

## Population

In computing any measure for any variable, available data from all public and separate school districts, school divisions and counties were included. There were, however, a few instances where the data required to calculate one or another of the variables for a district were missing or were clearly erroneous and correct information could not be obtained. In such cases, that district was omitted in calculating the measure for that variable.

Generally, the data from 121 school jurisdictions which had operating schools were used to complete the study. Regional school districts and private schools were excluded from the study.

## Treatment of Data

Phase One. The first phase of the study consisted of calculating the DPI's for each major subject area at each grade level for all public and separate school districts in Alberta which had operating schools during the 1978-79 school year. The mean and standard deviation of all DPI's calculated is found in Appendix A.

Phase Two. The second phase of the study consisted of computing district values for each of the predictor variables examined in the study. The mean and standard deviation for each of these predictors are found in Appendix A.

Phase Three. The final phase of the study consisted of using a stepwise multiple regression procedure (SPSS Manual, 1975:353) to determine the extent to which the variation found in various DPI's could be accounted for in terms of the set of predictor variables examined in the study. Regression equation results were only reported where: (1) the $R^2$ change was at least 0.010 (i.e., at least 1 percent), and (2) the level of significance for the overall F ratio was less than 0.01. The correlation coefficients for all variables examined in the study and the regression results for each criterion variable (DPI) are shown in Appendix B.

Statistical Limitation of the Results. Because of the possible high intercorrelation among some or all of the predictor variables, the variance accounted for by the first predictor may be overstated, i.e., the problem of multicollinearity referred to in the SPSS Manual (1975:340) and by Benson (1978:197) may be in existence.

## SUMMARY OF CHAPTER 3

This chapter has detailed the research design and procedures used in the study. Each of the following were outlined: (1) calculation of District Program Index (DPI), (2) the nature and source of data collected for the population studies (including the complete listing of all criterion and predictor variables examined in the study), (3) the treatment of data, and (4) the statistical limitation of results obtained.

The study was conducted in three distinct phases. First, the nature and extent of variation in district curricular program levels (DPI's) was determined for 121 public and separate school jurisdictions in Alberta which had operating schools during the 1978-79 school year. Second, district values were computed for each of the 32 predictor variables examined in the study and finally, stepwise multiple linear regression was used to determine the relationship between district curricular program levels and various measures of demographic, wealth, fiscal effort, revenue and expenditure variables.

## Chapter 4

## ANALYSIS AND FINDINGS AT THE ELEMENTARY LEVEL

This chapter presents the results of the data analysis and provides a discussion of the findings with respect to Sub-problems 1.1 through 1.6 of Problem 1. Problem 1 was stated as follows: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the elementary level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

### VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS AT THE ELEMENTARY LEVEL

This section reports the results of the data analysis and provides a discussion of findings with regard to Sub-problem 1.1.

#### Statement of Sub-Problem 1.1

Sub-problem 1.1 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas at the elementary level?

#### Findings

The mean and standard deviation of the DPI for the total instructional time provided in each of the major subject areas at the elementary level are shown in Table 4.1. The major findings noted were as follows:

Table 4.1

Variation of DPI's for the Total Instructional Time Provided in Major Subject Areas at the Elementary Level

| Major Subject Areas | Percentage of Total Program | DPI | |
|---|---|---|---|
| | | Mean | Standard Deviation |
| Language Arts | 41.1 | 94.00 | 11.09 |
| Mathematics | 15.3 | 35.16 | 4.13 |
| Social Studies | 9.5 | 22.80 | 4.17 |
| Science | 7.2 | 16.37 | 3.72 |
| Personal Development | 11.4 | 26.27 | 5.34 |
| Fine Arts | 8.9 | 20.28 | 3.19 |
| Second Languages | 1.7 | 3.89 | 6.29 |
| Other Subject Areas | 4.8 | 10.90 | 11.24 |
| Total Program | 100.00 | 228.67 | 13.70 |

1. The greatest proportion of the instructional program at the elementary level was devoted to language arts (41.1 percent), followed by mathematics (15.4 percent), personal development (11.4 percent), social studies (9.5 percent), fine arts (8.9 percent), second languages (1.7 percent), and other subjects (4.8 percent).
2. Except in the case of second languages, the standard deviation of each DPI tended to vary directly with the mean.
3. Slightly more than one-half of the total instructional program provided at the elementary level was devoted to the study of language arts and mathematics.

## Discussion of the Findings

Each of the major subject areas listed in Table 4.1, except the category designated second languages, represented components of the core curriculum outlined in the provincially prescribed program of studies. Thus, any program offering in second languages or those indicated as "other subject areas" in Table 4.1 were provided as a result of local option to do so.

## PREDICTORS OF VARIANCE OF DPI'S FOR TOTAL INSTRUCTIONAL TIME PROVIDED IN SUBJECT AREAS AT THE ELEMENTARY LEVEL

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 1.2.

### Statement of Sub-Problem 1.2

Sub-Problem 1.2 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas at the elementary level?

### Findings

Language Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in language arts at the elementary level are displayed in Table 4.2. Seven variables entered the regression equation which had an overall F ratio of 4.203 significant at the 0.001 level. The multiple R for these variables was 0.556 and $R^2$ was 0.309. The first two variables selected accounted for 20.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for junior high instruction, (3) Region 5, (4) Region 3, (5) amount of equalized

Table 4.2

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Language Arts at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.405 | 0.164 | -0.405 | -0.341 |
| Per pupil expenditure for junior high instruction | 0.427 | 0.182 | -0.171 | -0.083 |
| Region 5 | 0.459 | 0.210 | 0.181 | 0.190 |
| Region 3 | 0.473 | 0.224 | 0.140 | 0.176 |
| Amount of equalized assessment per pupil | 0.481 | 0.231 | 0.134 | -0.210 |
| Per pupil expenditures for operation and maintenance | 0.491 | 0.241 | 0.231 | 0.214 |
| Total SGR grants received per pupil | 0.504 | 0.254 | -0.154 | -0.151 |

F ratio = 4.125 Probability = 0.001

[a] Only includes predictors where the $R^2$ change was at least 0.010.

assessment per pupil, (6) per pupil expenditure for operation and maintenance, and (7) total SGR grants received per pupil.

Table 4.2 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in language arts at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in either Region 3 or 5;
2. Wealth
    a. higher if the amount of equalized assessment per pupil was low;
3. Revenue
    a. higher if the total SGR grants received per pupil was low;
4. Expenditure
    a. higher if the per pupil expenditure for junior high instruction was low; and,
    b. higher if the per pupil expenditure for operation and maintenance was high.

Mathematics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in mathematics at the elementary level are shown in Table 4.3. Five variables entered the regression equation which had an overall F ratio of 4.511 significant at the 0.001 level. The multiple R for these variables was 0.454 and $R^2$ was 0.206. The first three vari-

Table 4.3

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Mathematics at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.267 | 0.072 | -0.267 | -0.279 |
| Region 1 | 0.371 | 0.138 | 0.182 | 0.276 |
| Per pupil expenditure for administration | 0.410 | 0.168 | -0.200 | -0.263 |
| Ratio of SFPF grants received to total operational revenue | 0.438 | 0.191 | -0.126 | -0.175 |
| Net supplementary requisition mill rate | 0.454 | 0.206 | -0.052 | -0.123 |

F ratio = 4.511 Probability = .001

[a] Only includes predictors where the $R^2$ change was at least 0.010.

ables selected accounted for 16.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) Region 1, (3) per pupil expenditure for administration, (4) ratio of SFPF grants received to total operational revenue, and (5) net supplementary requisition mill rate.

Table 4.3 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in mathematics at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the net supplementary requisition mill rate was low;
3. Revenue
    a. higher if the ratio of SFPF grants received to total operational revenue was low; and,
4. Expenditure
    a. higher if the per pupil expenditure for administration was low.

Social Studies. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in social studies at the elementary level are reported in Table 4.4. Nine variables entered the regression equation which had an overall F ratio of 3.532 significant at the 0.001 level. The multiple R for these variables was 0.526 and $R^2$ was 0.277.

Table 4.4

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Social Studies at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.333 | 0.111 | -0.333 | -0.210 |
| Region 6 | 0.365 | 0.134 | -0.127 | -0.167 |
| Senior high enrolment | 0.390 | 0.152 | 0.194 | 2.982 |
| Elementary enrolment | 0.445 | 0.198 | 0.169 | -2.521 |
| Region 7 | 0.468 | 0.219 | 0.099 | -0.394 |
| Unsupported debt mill rate | 0.485 | 0.235 | 0.031 | 0.162 |
| Ratio of SGR grants received to total operational revenue | 0.504 | 0.254 | -0.207 | -0.147 |
| Per pupil expenditure for elementary instruction | 0.515 | 0.265 | 0.183 | 0.143 |
| Per pupil expenditure for junior high instruction | 0.526 | 0.277 | -0.093 | -0.119 |

F ratio = 3.532     Probability = 0.001

[a] Only includes predictors where the $R^2$ change was at least 0.010.

The first four variables selected accounted for 19.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) Region 6, (3) senior high enrolment, (4) elementary enrolment, (5) Region 7, (6) unsupported debt mill rate, (7) ratio of SGR grants received to total operational revenue, (8) per pupil expenditure for elementary instruction, and (9) per pupil expenditure for junior high instruction.

Table 4.4 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in social studies at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 6 or 7;
    c. higher if the senior high enrolment was high;
    d. higher if the elementary enrolment was low;
2. Wealth
    a. higher if the unsupported debt mill rate was high;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
4. Expenditure
    a. higher if the per pupil expenditure for elementary instruction was high; and,
    b. higher if the per pupil expenditure for junior high instruction was low.

Science. The regression results for the most important set of predictor variables of variance found in the DPI for total instructional time provided in science at the elementary level are displayed in Table 4.5. Nine variables entered the regression equation which had an overall F ratio of 4.358 significant at the 0.000 level. The multiple R was 0.566 and $R^2$ was 0.321. The first three variables selected accounted for 22.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) Region 3, (2) urban pupil ratio, (3) Region 1, (4) Region 2, (5) Region 3, (6) Region 6, (7) sparsity of pupil population, (8) ratio of SFPF grants received to total operational revenue, and (9) unsupported debt mill rate.

Table 4.5 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in science at the elementary level tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was located in either Region 1, 2, 3, 4 or 6;
   b. higher if the urban pupils ratio was low;
   c. lower the greater the degree of sparsity of pupil population;
2. Wealth
   a. higher if the unsupported debt mill rate as low; and,
3. Revenue
   a. higher if the ratio of SFPF grants received to total operational revenue was high.

Table 4.5

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Science at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Region 4 | 0.379 | 0.143 | 0.379 | 0.549 |
| Urban pupil ratio | 0.437 | 0.191 | -0.268 | -0.383 |
| Region 1 | 0.472 | 0.223 | 0.080 | 0.365 |
| Region 2 | 0.500 | 0.250 | 0.055 | 0.290 |
| Region 3 | 0.517 | 0.268 | -0.074 | 0.221 |
| Region 6 | 0.530 | 0.281 | -0.185 | 0.148 |
| Sparsity of pupil population | 0.541 | 0.292 | 0.145 | -0.187 |
| Ratio of SFPF grants received to total operational revenue | 0.553 | 0.306 | 0.129 | 0.153 |
| Unsupported debt mill rate | 0.566 | 0.321 | 0.123 | 0.134 |

F ratio = 4.358    Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Personal Development. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in personal development at the elementary level are shown in Table 4.6. Seven variables entered the regression equation which had an overall F ratio of 4.3777 significant at the 0.000 level. The multiple R for these variables was 0.515 and $R^2$ was 0.265. The first three variables selected accounted for 15.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) school building utilization ratio, (2) per pupil expenditure for elementary instruction, (3) urban pupil ratio, (4) total SFPF grants received per pupil, (5) Region 6, (6) Region 2, and (7) Region 3.

Table 4.6 indicates that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in personal development at the elementary level tended to be as follows:

1. Demographic characteristics
    - a. higher if the jurisdiction was located in either Region 2, 3 or 6;
    - b. higher if the school building utilization ratio was low;
    - c. higher if the urban pupil ratio was low;
2. Expenditure
    - a. higher if the per pupil expenditure for elementary instruction was low.

Fine Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instruc-

Table 4.6

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Personal Development at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| School building utilization ratio | 0.259 | 0.067 | -0.259 | -0.362 |
| Per pupil expenditure for elementary instruction | 0.343 | 0.118 | -0.154 | -0.192 |
| Urban pupil ratio | 0.391 | 0.153 | -0.248 | -0.349 |
| Total SFPF grants received per pupil | 0.446 | 0.199 | -0.032 | -0.314 |
| Region 6 | 0.481 | 0.231 | 0.128 | 0.249 |
| Region 2 | 0.497 | 0.2457 | 0.018 | 0.178 |
| Region 3 | 0.515 | 0.265 | 0.053 | 0.146 |

F ratio = 4.577 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

tional time provided in fine arts at the elementary level are displayed in Table 4.7. Ten variables entered the regression equation which had an overall F ratio of 4.412 significant at the 0.000 level. The multiple R for these variables was 0.591 and $R^2$ was 0.350. The first four variables selected accounted for 26.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) sparsity of pupil population, (3) amount of supplementary requisition levied per pupil, (4) net supplementary requisition mill rate, (5) urban pupil ratio, (6) unsupported debt mill rate, (7) ratio of SFPF grants received to total operational revenue, (8) per pupil expenditure for junior high instruction, (9) ratio of supplementary requisition levied to total operational revenue, and (10) per pupil expenditure for administration.

Table 4.7 reveals that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in fine arts at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was sparsely populated;
    b. higher if the urban pupil ratio was low;
2. Wealth
    a. higher if the unsupported debt mill rate was high;
3. Fiscal efforts
    a. higher if the amount of supplementary requisition levied per pupil was low;

Table 4.7

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Fine Arts at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.387 | 0.150 | -0.387 | -0.433 |
| Sparsity of pupil population | 0.437 | 0.191 | 0.319 | 0.048 |
| Amount of supplementary requisition levied per pupil | 0.478 | 0.229 | 0.035 | -0.736 |
| Net supplementary requisition mill rate | 0.514 | 0.264 | 0.202 | 0.234 |
| Urban pupil ratio | 0.534 | 0.285 | -0.308 | -0.283 |
| Unsupported debt mill rate | 0.549 | 0.302 | -0.052 | -0.224 |
| Ratio of SFPF grants received to total operational revenue | 0.563 | 0.317 | 0.315 | 0.142 |
| Per pupil expenditure for junior high instruction | 0.572 | 0.328 | -0.081 | 0.126 |
| Ratio of supplementary requisition levied to total operational revenue | 0.581 | 0.338 | 0.140 | 0.468 |
| Per pupil expenditure for administration | 0.591 | 0.350 | -0.220 | 0.137 |

F ratio = 4.412 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

   b. higher if the net supplementary requisition mill rate was high;

4. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low;
   b. higher if the ratio of SFPF grants received to total operational revenue was high;
   c. higher if the ratio of supplementary requisition levied to total operational revenue was high;
5. Expenditure
   a. higher if the per pupil expenditure for junior high instruction was high; and,
   b. higher if the per pupil expenditure for administration was high.

Second Languages. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in second languages at the elementary level are reported in Table 4.8. Nine variables entered the regression equation which had an overall F ratio of 4.730 significant at the 0.000 level. The multiple R for these variables was 0.582 and $R^2$ was 0.339. The first four variables selected accounted for 26.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) Region 2, (3) unsupported debt mill rate, (4) school building utilization ratio, (5) per pupil expenditure for elementary instruction, (6) ratio of supplementary requisition levied to total operational revenue, (7) total SGR grants received per pupil, (8) amount of equal-

Table 4.8

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Second Languages at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SFPF grants received to total operational revenue | 0.336 | 0.113 | 0.336 | -0.298 |
| Region 2 | 0.397 | 0.157 | 0.242 | 0.090 |
| Unsupported debt mill rate | 0.446 | 0.199 | -0.027 | -0.499 |
| School building utilization ratio | 0.517 | 0.268 | 0.229 | 0.432 |
| Per pupil expenditure for elementary instruction | 0.538 | 0.289 | -0.004 | 0.207 |
| Ratio of supplementary requisition levied to total operational revenue | 0.548 | 0.300 | -0.288 | -0.378 |
| Total SGR grants received per pupil | 0.563 | 0.317 | 0.297 | 0.741 |
| Amount of equalized assessment per pupil | 0.573 | 0.329 | -0.217 | 0.236 |
| Per pupil expenditure for operation and maintenance | 0.582 | 0.339 | -0.167 | -0.168 |

F ratio = 4.730 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

ized assessment per pupil, and (9) per pupil expenditure for operation and maintenance.

Table 4.8 shows that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in second languages at the elementary level tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was located in Region 2;
   b. higher if the school building utilization ratio was high;
2. Wealth
   a. higher if the unsupported mill rate was low;
   b. higher if the amount of equalized assessment per pupil was high;
3. Fiscal effort
   a. higher if the ratio of supplementary requisition levied to total operational revenue was low;
4. Revenue
   a. higher if the ratio of SGR grants to total operational revenues was low;
5. Expenditure
   a. higher if the per pupil expenditure for elementary instruction was high; and,
   b. higher if the per pupil expenditure for operation and maintenance was low.

Other Subject Areas. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in other subject areas at the elementary level are displayed in Table 4.9. Five variables entered the regression equation which had an overall F ratio of 15.945 significant at the 0.000 level. The multiple R for these variables was 0.692 and $R^2$ was 0.478. The first two variables selected accounted for 41.2 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) ratio of supplementary requisition levied to total operational revenue, (3) per pupil expenditure for administration, (4) Region 1, and (5) per pupil expenditure for transportation.

Table 4.9 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in other subject areas at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a separate school district;
    b. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was low;
3. Expenditure
    a. higher if the per pupil expenditure for administration was high; and,
    b. higher if the per pupil expenditure for transportation was low.

Table 4.9

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Other Subject Areas at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.621 | 0.385 | 0.621 | 0.383 |
| Ratio of supplementary requisition levied to total operational revenue | 0.642 | 0.412 | -0.467 | -0.232 |
| Per pupil expenditure for administration | 0.662 | 0.438 | 0.289 | 0.251 |
| Region 1 | 0.680 | 0.462 | 0.077 | -0.163 |
| Per pupil expenditure for transportation | 0.692 | 0.498 | -0.420 | -0.171 |

F ratio = 15.945 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

## Discussion of the Findings

In summary, the findings of this study indicated that the total instructional time provided in each of the major subject areas at the elementary level varied along three dimensions outlined below.

1. In the total amount of variation that could be accounted for in terms of the set of predictor variables examined in the study. The total amount of variance explained in the DPI for each of the major subject area groupings was as follows:
    a. 35.0 percent for fine arts;
    b. 33.9 percent for second languages;
    c. 32.1 percent for science;
    d. 27.7 percent for social studies;
    e. 26.5 percent for personal development;
    f. 25.4 percent for language arts;
    g. 20.6 percent for mathematics; and,
    h. 47.8 percent for other subjects offered.
2. In regard to the nature and extent to which the most important single predictor accounted for the variance found in each DPI. The following results were noted:
    a. Jurisdiction type accounted for 16.4 percent of the variance found in the DPI for language arts, 7.2 percent of the variance found in the DPI for mathematics, and 11.1 percent of the variance found in the DPI for social studies.
    b. The ratio of SGR grants received to total operational revenue accounted for 15.0 percent of the variance found in the DPI for fine arts, and 11.3 percent of the variance found in the DPI for second languages.

c. Location in Region 4 accounted for 14.3 percent of the variance found in the DPI for science.

d. The school building utilization ratio accounted for 6.7 percent of the variance found in the DPI for personal development.

3. In the impact that certain measures (i.e., when the values of other predictors were held constant) from each of the five categories of predictor variables had on various DPI's. These are summarized below:

   a. Demographic characteristics

      i. The DPI tended to be higher for language arts in Regions 3 and 5, mathematics in Region 1, science in Regions 2, 3, 4 and 6, second languages in Region 2, and social studies in Regions 1, 2, 3, 4 and 5.

      ii. The DPI for each of language arts, mathematics and social studies tended to be higher if a jurisdiction was a public school district.

      iii. The DPI for second languages tended to be higher while that for science tended to be lower in sparsely populated jurisdictions.

      iv. The DPI for each of personal development and fine arts tended to be higher if the urban pupil ratio was low.

      v. The DPI for social studies tended to be higher if the elementary enrolment was low and the senior high enrolment was high.

b. Wealth

  i. The DPI for social studies tended to be higher while that for fine arts tended to be lower if the unsupported debt mill rate was high.

  ii. The DPI for each of language arts and fine arts tended to be lower if the amount of equalized assessment per pupil was high.

c. Fiscal effort

  i. The DPI for mathematics tended to be lower while that for fine arts tended to be higher if the net supplementary requisition mill rate was high.

  ii. The DPI for fine arts tended to be higher while that for second languages lower if the ratio of supplementary requisition levied to total operational revenue was high.

  iii. The DPI for fine arts tended to be lower if the amount of supplementary requisition levied per pupil was high.

d. Revenue

  i. The DPI for each of language arts, social studies, fine arts and second languages tended to be higher if the ratio of SGR grants received to total operational revenue was low.

  ii. The DPI for science and fine arts tended to be higher while that for mathematics tended to be lower if the ratio of SFPF grants received to total operational revenue was high.

e. Expenditure

i. The DPI for each of social studies and second languages tended to be higher while that for personal development tended to be lower if the per pupil expenditure for elementary instruction was high.

ii. The DPI for each of language arts and social studies tended to be higher while that for fine arts tended to be lower if the per pupil expenditure for junior high instruction was low.

iii. The DPI for mathematics tended to higher while that for fine arts tended to be lower if the per pupil expenditure for administration was low.

iv. The DPI for language arts tended to be higher while that for second languages tended to be lower if the per pupil expenditure for operation and maintenance was high.

## VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT ELEMENTARY GRADE LEVELS

This section outlines the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 1.3.

### Statement of Sub-Problem 1.3

Sub-problem 1.3 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the elementary grades?

## Findings

The nature and extent of variance of the DPI for the total intructional time provided in each of the elementary grades are shown in Table 4.10.

The following were the major findings noted:

1. The average amount of instructional time provided in each of the elementary grades ranged from about 37 credit-equivalent units in grade one to over 38 credit-equivalent units in grades two through six.
2. Although the DPI was lowest at the grade one level, there was a slightly greater degree of variation found at this level than at each of the other elementary grade levels.

## Discussion of the Findings

The slightly lower DPI at the grade one level as well as the somewhat greater degree of variation noted in this index was due most likely to two factors. First, some jurisdictions designate a shorter instructional day for grade one pupils. Second, some jurisdictions also designate a shorter instructional year for these pupils in order to facilitate the holding of orientation programs for beginning pupils at the close of each school year.

## PREDICTORS OF VARIANCE OF DPI'S FOR TOTAL INSTRUCTIONAL TIME PROVIDED AT ELEMENTARY GRADE LEVELS

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 1.4.

Table 4.10

Variation of DPI's for the Total Instructional Time Provided at Elementary Grade Levels

| Grade | Percentage of Total Program | DPI | |
|---|---|---|---|
| | | Mean | Standard Deviation |
| 1 | 16.16 | 36.95 | 3.21 |
| 2 | 16.70 | 38.19 | 2.27 |
| 3 | 16.69 | 38.16 | 2.42 |
| 4 | 16.75 | 38.31 | 2.55 |
| 5 | 16.81 | 38.44 | 2.51 |
| 6 | 16.89 | 38.62 | 2.56 |
| Total Program | 100.00 | 228.67 | 13.70 |

## Statement of Sub-Problem 1.4

Sub-problem 1.4 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the elementary grades?

## Findings

Grade One. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade one level are displayed in Table 4.11. Seven variables entered the regression equation which had an overall F ratio of 5.423 significant at the 0.000 level. The multiple R for these variables was 0.556 and $R^2$ was 0.309. The first two variables selected accounted for 20.7 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) urban pupil ratio, (2) ratio of supplementary requisition levied to total operational revenue, (3) Region 6, (4) per pupil expenditure for senior high instruction, (5) Region 2, (6) Region 6, and (7) per pupil expenditure for junior high instruction.

Table 4.11 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade one level tended to be as follows:

1. Demographic characteristics
    a. higher if the urban pupil ratio was low;
    b. lower if the jurisdiction was located in either Region 6 or 7;

Table 4.11

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade One Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Urban pupil ratio | 0.286 | 0.082 | -0.286 | -0.300 |
| Ratio of supplementary requisition levied to total operational revenue | 0.455 | 0.207 | -0.256 | -0.273 |
| Region 6 | 0.483 | 0.232 | -0.250 | -0.177 |
| Per pupil expenditure for senior high instruction | 0.503 | 0.254 | -0.176 | -0.212 |
| Region 2 | 0.532 | 0.283 | 0.217 | 0.191 |
| Region 7 | 0.545 | 0.297 | -0.323 | -0.132 |
| Per pupil expenditure for junior high instruction | 0.556 | 0.309 | -0.006 | 0.110 |

F ratio = 5.423     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

c. higher if the jurisdiction was located in Region 2;

2. Fiscal effort

   a. higher if the ratio of supplementary requisition levied to total operational revenue was low;

3. Expenditure

   a. higher if the per pupil expenditure for senior high instruction was low; and,

   b. higher if the per pupil expenditure for junior high instruction was high.

Grade Two. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade two level are displayed in Table 4.12. Nine variables entered the regression equation which had an overall F ratio of 4.203 significant at the 0.000 level. The multiple R for these variables was 0.560 and $R^2$ was 0.313. The first two variables selected accounted for 16.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount supplementary requisition levied per pupil, (2) jurisdiction type, (3) Region 6, (4) per pupil expenditure for transportation, (5) urban pupil ratio, (6) total operational expenditure per pupil, (7) ratio of SGR grants received to total operational revenue, (8) per pupil expenditure for administration, and (9) Region 1.

Table 4.12 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade two level tended to be as follows:

Table 4.12

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Two Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.377 | 0.142 | -0.377 | -0.625 |
| Jurisdiction type | 0.410 | 0.168 | 0.046 | -0.108 |
| Region 6 | 0.430 | 0.185 | -0.168 | -0.144 |
| Per pupil expenditure for transportation | 0.448 | 0.201 | -0.293 | -0.716 |
| Urban pupil ratio | 0.480 | 0.230 | -0.007 | -0.365 |
| Total operational expenditure per pupil | 0.504 | 0.254 | -0.232 | 0.506 |
| Ratio of SGR grants received to total operational revenue | 0.534 | 0.286 | 0.085 | -0.281 |
| Per pupil expenditure for administration | 0.546 | 0.298 | -0.085 | 0.159 |
| Region 1 | 0.560 | 0.313 | -0.009 | -0.138 |

F ratio = 4.203     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 1 or 6;
    c. higher if the urban ratio was low;
2. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
4. Expenditure
    a. higher if the per pupil expenditure for transportation was low;
    b. higher if the total operational expenditure per pupil was high; and,
    c. higher if the per pupil expenditure for administration was high.

Grade Three. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade three level are shown in Table 4.13. Ten variables entered the regression equation which had an overall F ratio of 2.604 significant at the 0.009 level. The multiple R for these variables was 0.491 and $r^2$ was 0.241. The first three variables selected accounted for 12.1 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) jurisdiction type, (3) school building utilization ratio, (4) Region 1, (5) per pupil expenditure for administration, (6) Region 6, (7) per pupil expenditure for transportation, (8) total expenditure per pupil, (9) unsupported debt mill rate, and (10) urban pupil ratio.

Table 4.13 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade three level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building was high;
    c. lower if the jurisdiction was located in either Region 1 or 6;
    d. higher if the urban pupil ratio was low;
2. Wealth
    a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;
4. Expenditure
    a. higher if the per pupil expenditure for administration was high;
    b. higher if the per pupil expenditure for transportation was low; and,
    c. higher if the total operational expenditure per pupil was high.

Grade Four. The regression results for this most important set of predictor variables of variance found in the DPI the total instruc-

Table 4.13

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Three Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.242 | 0.059 | -0.242 | -0.480 |
| Jurisdiction type | 0.304 | 0.092 | -0.040 | -0.223 |
| School building utilization ratio | 0.348 | 0.121 | 0.219 | 0.296 |
| Region 1 | 0.370 | 0.137 | -0.090 | -0.198 |
| Per pupil expenditure for administration | 0.397 | 0.157 | -0.021 | 0.126 |
| Region 6 | 0.417 | 0.174 | -0.124 | -0.102 |
| Per pupil expenditure for transportation | 0.432 | 0.186 | -0.198 | -0.507 |
| Total operational expenditure per pupil | 0.453 | 0.205 | -0.124 | 0.525 |
| Unsupported debt mill rate | 0.477 | 0.228 | 0.035 | -0.239 |
| Urban pupil ratio | 0.491 | 0.241 | 0.015 | -0.216 |

F ratio = 2.604 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

tional time provided at the grade four level are displayed in Table 4.14. Ten variables entered the regression equation which had an overall F ratio of 3.042 significant at the 0.003 level. The multiple R for these variables was 0.520 and $R^2$ was 0.271. The first two variables selected accounted for 11.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) jurisdiction type, (3) school building utilization ratio, (4) net supplementary requisition mill rate, (5) per pupil expenditure for transportation, (6) urban pupil ratio, (7) per pupil expenditure for transportation, (8) total operational expenditure per pupil, (9) unsupported debt mill rate, and (10) sparsity of pupil population.

Table 4.14 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the values of the other predictors were held constant, the DPI for the total instructional time provided at the grade four level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. higher if the urban pupil ratio was low;
    d. lower if the jurisdiction was sparsely populated;
2. Wealth
    a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;

Table 4.14

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Four Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.260 | 0.068 | -0.260 | -0.371 |
| Jurisdiction type | 0.336 | 0.113 | -0.056 | -0.217 |
| School building utilization ratio | 0.363 | 0.132 | 0.193 | 0.301 |
| Net supplementary requisition mill rate | 0.382 | 0.146 | -0.129 | -0.107 |
| Per pupil expenditure for transportation | 0.401 | 0.161 | -0.206 | -0.684 |
| Urban pupil ratio | 0.430 | 0.185 | -0.044 | -0.586 |
| Per pupil expenditure for administration | 0.461 | 0.212 | -0.035 | 0.089 |
| Total operational expenditure per pupil | 0.471 | 0.222 | -0.146 | 0.479 |
| Unsupported debt mill rate | 0.505 | 0.256 | 0.020 | -0.297 |
| Sparsity of pupil population | 0.520 | 0.271 | -0.005 | -0.220 |

F ratio = 3.042     Probability = 0.003

[a] Only includes predictors where the $R^2$ change was at least 0.010.

b. higher if the net supplementary requisition mill rate was low;

4. Expenditure
   a. higher if the per pupil expenditure for transportation was low;
   b. higher if the per pupil expenditure for administration was high; and,
   c. higher if the total operational expenditure per pupil was high.

Grade Five. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade five level are displayed in Table 4.15. Twelve variables entered the regression equation which had an overall F ratio of 3.075 significant at the 0.001 level. The multiple R for these variables was 0.562 and $R^2$ was 0.316. The first three variables selected accounted for 14.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) jurisdiction type, (3) net supplementary requisition mill rate, (4) school building utilization ratio, (5) per pupil expenditure for administration, (6) ratio of the supplementary requisition levied to total operational expenditure, (7) urban pupil ratio, (8) per pupil expenditure for transportation, (9) unsupported debt mill rate, (10) total operational expenditure per pupil, (11) ratio of SFPF grants received to total operational revenue, and (12) sparsity of pupil population.

Table 4.15 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the

Table 4.15

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Five Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.281 | 0.079 | -0.281 | -0.932 |
| Jurisdiction type | 0.353 | 0.125 | -0.048 | -0.169 |
| Net supplementary requisition mill rate | 0.382 | 0.146 | -0.163 | -0.113 |
| School building utilization ratio | 0.405 | 0.164 | 0.191 | 0.338 |
| Per pupil expenditure for administration | 0.423 | 0.179 | 0.000 | 0.184 |
| Ratio of supplementary requisition levied to total operational revenue | 0.446 | 0.199 | -0.226 | 0.411 |
| Urban pupil ratio | 0.465 | 0.217 | -0.088 | -0.554 |
| Per pupil expenditure for transportation | 0.490 | 0.241 | -0.173 | -0.573 |
| Unsupported debt mill rate | 0.505 | 0.255 | 0.000 | -0.300 |
| Total operational expenditure per pupil | 0.530 | 0.281 | -0.164 | 0.658 |
| Ratio of SFPF grants received to total operational revenue | 0.551 | 0.304 | 0.130 | 0.191 |
| Sparsity of pupil population | 0.562 | 0.316 | 0.045 | -0.204 |

F ratio = 3.075 Probability = 0.001

[a] Only includes predictors where the $R^2$ change was at least 0.010.

DPI for the total instructional time provided at the grade five level tended to be as follows:

1. Demographic characteristics
    - a. higher if the jurisdiction was a public school district;
    - b. higher if the school building utilization ratio was high;
    - c. higher if the urban pupil ratio was low;
    - d. lower if the jurisdiction was sparsely populated;
2. Wealth
    - a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    - a. higher if the amount of supplementary requisition levied per pupil was low;
    - b. higher if the net supplementary requisition mill rate was low;
    - c. higher if the ratio of supplementary requisition levied to total operational expenditure was high;
4. Revenue
    - a. higher if the ratio of SFPF grants received to total operational revenue was high;
5. Expenditure
    - a. higher if the per pupil expenditure for administration was high;
    - b. higher if the per pupil expenditure for transportation was low; and,
    - c. higher if the total operational expenditure per pupil was high.

Grade Six. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade six level are displayed in Table 4.16. Ten variables entered the regression equation which had an overall F ratio of 2.911 significant at the 0.003 level. The multiple R for these variables was 0.512 and $R^2$ was 0.262. The first three variables selected accounted for 13.9 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) jurisdiction type, (3) school building utilization ratio, (4) per pupil expenditure for administration, (5) ratio of SGR grants received to total operational revenue, (6) per pupil expenditure for senior high instruction, (7) urban pupil raito, (8) per pupil expenditure for transportation, (9) total operational expenditure per pupil, and (10) unsupported debt mill rate.

Table 4.16 reveals that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade six level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. higher if the urban pupil ratio was low;
2. Wealth
    a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;

Table 4.16

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Six Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.281 | 0.079 | -0.281 | -0.616 |
| Jurisdiction type | 0.333 | 0.111 | -0.017 | -0.184 |
| School building utilization ratio | 0.372 | 0.139 | 0.226 | 0.305 |
| Per pupil expenditure for administration | 0.407 | 0.165 | 0.021 | 0.248 |
| Ratio of SGR grants received to total operational revenue | 0.431 | 0.186 | 0.032 | -0.250 |
| Per pupil expenditure for senior high instruction | 0.450 | 0.202 | 0.007 | 0.103 |
| Urban pupil ratio | 0.462 | 0.213 | -0.062 | -0.347 |
| Per pupil expenditure for transportation | 0.481 | 0.231 | -0.156 | -0.444 |
| Total operational expenditures per pupil | 0.493 | 0.243 | -0.161 | 0.428 |
| Unsupported debt mill rate | 0.512 | 0.262 | 0.013 | -0.211 |

F ratio = 2.911 Probability = 0.003

[a] Only includes predictors where the $R^2$ change was at least 0.010.

4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
5. Expenditure
    a. higher if the per pupil expenditure for administration was high;
    b. higher if the per pupil expenditure for senior high instruction was high;
    c. higher if the per pupil expenditure for transportation was low; and,
    d. higher if the total operational expenditure per pupil was high.

## Discussion of the Findings

In summary, the findings of this study generally indicated that the total instructional time provided at each of the elementary grade levels did not vary substantially between successive grade levels. Overall, only 25 to 32 percent of the variance found in each of the DPI's could be accounted for in terms of the predictor variables examined in the study. It was noted that the amount of supplementary requisition levied per pupil was the most important single predictor of variance found in the DPI at each of the grade levels, except grade one.

On the whole, there was a fair degree of consistency noted in the relationship between the total instructional time provided at each of the elementary grade levels and a certain number of measures (i.e., when the effects of other predictors were held constant) from each of the five categories of predictor variables examined in the study. The findings were as follows:

1. Demographic characteristics
    a. The DPI for each of the elementary grades tended to be higher if the urban pupil ratio was low.
    b. Except for grade one, the DPI for each of the other elementary grades tended to be higher if the jurisdiction was a public school district.
    c. Except for grades one and two, the DPI for each of the other elementary grades tended to be higher if the school building utilization ratio was high.
    d. The DPI for each of grades four and five tended to be lower in sparsely populated jurisdictions.
    e. The DPI tended to be lower for grade one in Regions 6 and 7, and higher in Region 2; and lower for each of grades two and three in Regions 1 and 6.
2. Wealth
    a. Except for grades one and two, the DPI for each of the other elementary grades tended to be higher if the unsupported debt mill rate was low.
3. Fiscal effort
    a. Except for grade one, the DPI for each of the other elementary grades tended to be higher if the amount of supplementary requisition levied per pupil was low.
    b. The DPI for each of grades four and five tended to be higher if the net supplementary requisition mill rate was low.

   c. The DPI for grade one tended to be higher while that for grade five tended to be lower if the ratio of the supplementary requisition levied to total operational revenue was low.

4. Revenue
   a. The DPI for each of grades two and six tended to be higher if the ratio of SGR grants received to total operational revenue was low.
   b. The DPI for grade five tended to be higher if the ratio of SFPF grants to total operational revenue was high.
5. Expenditure
   a. Except for grade one, the DPI for each of the other elementary grades tended to be higher if
      i. the per pupil expenditure for administration was high;
      ii. the per pupil expenditure for transportation was low; and,
      iii. the total operational expenditure per pupil was high.

## VARIATION OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE ELEMENTARY LEVEL

This section presents the results of the data analysis and provides a discussion of the findings with regard to Sub-problem 1.5.

### Statement of Sub-Problem 1.5

Sub-problem 1.5 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided at the elementary level?

### Findings

As shown previously in Table 4.10, the DPI for the total instructional time provided at the elementary level had a mean of 228.7 credit-equivalent units and a standard deviation of 13.7.

### Discussion of the Findings

With reference to the overall elementary DPI, the findings of the study generally indicate that there was not a substantial amount of variation noted among school jurisdictions in Alberta in total program offering at the elementary level. While actual program content may vary among jurisdictions, the total amount of scheduled instructional time does not appear to vary to any significant extent.

## PREDICTORS OF VARIANCE OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE ELEMENTARY LEVEL

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 1.6.

### Statement of Sub-Problem 1.6

Sub-problem 1.6 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the elementary level?

### Findings

The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the elementary level are shown in Table 4.17. Eleven variables entered the regression equation which had an overall F ratio of

3.293 significant at the 0.001 level. The multiple R for these variables was 0.556 and $R^2$ was 0.309. The first two variables selected accounted for 14.5 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) jurisdiction type, (3) per pupil expenditure for administration, (4) Region 6, (5) Region 1, (6) school building utilization ratio, (7) urban pupil ratio, (8) per pupil expenditure for transportation, (9) total operational expenditure per pupil, (10) unsupported debt mill rate, and (11) ratio of SGR grants received to total operational revenue.

Table 4.17 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the elementary level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 1 or 6;
    c. higher if the school building utilization ratio was high;
    d. higher if the urban pupil ratio was low;
2. Wealth
    a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;

Table 4.17

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Elementary Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.309 | 0.095 | -0.309 | -0.687 |
| Jurisdiction type | 0.381 | 0.145 | -0.042 | -0.164 |
| Per pupil expenditure for administration | 0.404 | 0.163 | -0.014 | 0.193 |
| Region 6 | 0.424 | 0.180 | -0.155 | -0.109 |
| Region 1 | 0.441 | 0.194 | -0.014 | -0.117 |
| School building utilization ratio | 0.453 | 0.205 | 0.170 | 0.260 |
| Urban pupil ratio | 0.468 | 0.219 | -0.101 | -0.403 |
| Per pupil expenditure for transportation | 0.497 | 0.247 | -0.161 | -0.576 |
| Total operational expenditure per pupil | 0.509 | 0.259 | -0.145 | -0.613 |
| Unsupported debt mill rate | 0.544 | 0.296 | 0.006 | -0.248 |
| Ratio of SGR grants received to total operational revenue | 0.556 | 0.309 | 0.071 | -0.181 |

F ratio = 3.293 Probability = 0.001

[a] Only includes predictors where the $R^2$ change was at least 0.010.

4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
5. Expenditure
    a. higher if the per pupil expenditure for administration was high;
    b. higher if the per pupil expenditure for transportation was low; and,
    c. higher if the total operational expenditure per pupil was high.

### Discussion of the Findings

Although there was not a substantial degree of variation found in the overall DPI, public school districts which had a low supplementary requisition on a per pupil basis tended to provide more extensive curricular offerings at the elementary level.

## SUMMARY OF CHAPTER 4

The findings of this study indicate that the total instructional time provided in major subject areas at each of the elementary grade levels did not vary substantially among Alberta school jurisdictions. Only about 30 percent of the variation found in the DPI at each elementary grade level could be accounted for by the set of predictor variables examined in the study. Except at the grade one level, the most important single predictor of variance in the DPI at each elementary grade level was the amount of supplementary requisition levied per pupil.

The findings of the study also indicate that the DPI's representative of the total instructional time provided in each of the major subject areas at the elementary level varied along four major dimensions. First, in the total amount of instructional time which generally was provided in each of the major subject areas. It was noted, for example, that the greatest proportion of the elementary program was devoted to the study of language arts (41.4 percent) while the least was devoted to the study of second languages (1.7 percent). Second, in the amount of variation found in the DPI for each of the major subject areas which could be accounted for in terms of the predictor variables examined in the study. The amount of explained variation for each of the major subject areas ranged from 20.6 percent for mathematics to 35.0 percent for fine arts. Third, in the nature of the predictor variable which was found to account for the greatest proportion of variance of the DPI for each of the major subject areas. Jurisdiction type, the predictor selected first most often, was found to be the most important single predictor of variance accounted for in the DPI for each of language arts, mathematics and science. Fourth, in the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five broad categories of predictor variables had on various subject area DPI's. A total of 21 of the 32 predictor variables examined in the study entered one or more of the regression equations.

With reference to the DPI representative of the total instructional time provided in major subject areas at all elementary grade levels, it was found that the amount of supplementary requisition levied per pupil and the jurisdiction type accounted for 14.5 percent of the 30.9 percent of variance noted. In general, public school districts which had a low supplementary requisition on a per pupil basis tended to provide more extensive curricular program offerings at the elementary level.

## Chapter 5

## ANALYSIS AND FINDINGS AT THE JUNIOR HIGH LEVEL

This chapter presents the results of the data analysis and provides a discussion of the findings with respect to Sub-problems 2.1 through 2.6 of Problem 2. Problem 2 was stated as follows: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the junior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

### VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS AT THE ELEMENTARY LEVEL

This section reports the results of the data analysis and provides a discussion of findings with regard to Sub-problem 2.1.

#### Statement of Sub-Problem 2.1

Sub-problem 2.1 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas at the junior high level?

#### Findings

The mean and standard deviation of the DPI for the total instructional time provided in each of the major subject areas at the junior high level are shown in Table 5.1. The major findings noted were as follows:

Table 5.1

Extent of Variation in DPI's for the Total Instructional Time Provided in Major Subject Areas at the Junior High Level

| Major Subject Areas | Percentage of Total Program | DPI Mean | DPI Standard Deviation |
|---|---|---|---|
| Language Arts | 21.32 | 32.37 | 7.12 |
| Mathematics | 12.77 | 19.39 | 3.57 |
| Social Studies | 15.78 | 23.95 | 5.84 |
| Science | 13.67 | 20.75 | 6.71 |
| Personal Development | 13.56 | 20.59 | 5.77 |
| Fine Arts | 9.97 | 15.14 | 10.04 |
| Second Languages | 4.47 | 6.79 | 6.05 |
| Business Education | 1.26 | 1.91 | 2.21 |
| Home Economics | 3.52 | 5.35 | 4.06 |
| Industrial Education (General) | 3.22 | 4.89 | 3.84 |
| Other Subject Areas | 0.43 | 0.66 | 1.33 |
| Total Program | 100.00 | 151.79 | 27.02 |

1. The greatest proportion of the instructional program at the junior high level was devoted to language arts (21.1 percent), followed by social studies (15.8 percent), science (13.7 percent), personal development (13.6 percent), mathematics (12.8 percent), fine arts (10.0 percent), second languages (4.5 percent), home economics (3.5 percent), industrial education general (3.2 percent), business education (1.3 percent) and other subjects (0.4 percent).
2. Slightly more than one-third of the total instructional program at the junior high level was devoted to instruction in language arts and social studies.
3. About 13 percent of the instructional program at the junior high level was devoted to personal development, science and mathematics.
4. The extent of the instructional program provided in second lan-

guages, home economics and industrial education (general) amount to less than 4 percent of the overall program.

5. Generally, there was much less variation in the DPI for the total instructional time provided in each of language arts, mathematics, social studies, science, and personal development than in each of the remaining major subject areas.

## Discussion of the Findings

The bulk (about 87 percent) of the instructional program offered at the junior high level was devoted to those subject area categories which stemmed from the core curriculum outlined in the provincially prescribed program of studies, i.e., language arts, mathematics, social studies, science, personal development and fine arts. The remaining part (about 13 percent) of the instructional program was offered in second languages, business education, home economics, industrial education (general) and other subject areas considered to be optional.

## PREDICTORS OF VARIANCE OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS AT THE JUNIOR HIGH LEVEL

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 2.2.

## Statement of Sub-Problem 2.2

Sub-problem 2.2 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas at the junior high level?

## Findings

Language Arts. As indicated in Table 5.2, the regression results for the variation found in the DPI for the total instructional time provided in language arts at the junior high level were not considered significant as the probability for the overall F ratio was 0.022. The single best predictor was the ratio of SGR grants received to total operational revenue which had a correlation coefficient (simple R) of -0.226 and $R^2$ of 0.051.

Mathematics. As shown in Table 5.3, the regression results for the prediction of variance in the DPI for the total instructional time provided in mathematics at the junior high level were not considered significant as the probability for the overall F ratio was 0.087. The single best predictor was jurisdiction type which had a correlation coefficient (simple R) of -0.187 and $R^2$ of 0.035.

Social Studies. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in social studies at the junior high level are shown in Table 5.4. Nine variables entered the regression equation which had an overall F ratio of 6.489 significant at the 0.000 level. The multiple R for those variables was 0.642 and $R^2$ was 0.413. The first three variables selected accounted for 26.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) urban pupil ratio, (2) Region 3, (3) per pupil expenditure for operation and maintenance, (4) school building utilization ratio, (5) per pupil expenditure for senior high instruction, (6) Region 2, (7) Region 7, (8) ratio of the supplementary requisition levied to total operational revenue, and (9) jurisdiction type.

Table 5.2

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Language Arts at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.226 | 0.051 | -0.226 | -0.130 |
| School building utilization ratio | 0.282 | 0.080 | 0.138 | 0.209 |
| Region 6 | 0.327 | 0.107 | 0.190 | 0.172 |
| Jurisdiction type | 0.355 | 0.126 | -0.190 | -0.143 |
| Per pupil expenditure for senior high instruction | 0.372 | 0.138 | -0.172 | -0.116 |

F ratio = 2.793    Probability = 0.022

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 5.3

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Mathematics at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.187 | 0.035 | -0.187 | -0.145 |
| Region 4 | 0.234 | 0.055 | 0.154 | 0.133 |
| Per pupil expenditure for transportation | 0.266 | 0.071 | -0.179 | -0.131 |

F ratio = 2.260  Probability = 0.087

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 5.4

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Social Studies at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Urban pupil ratio | 0.398 | 0.158 | 0.398 | 0.284 |
| Region 3 | 0.453 | 0.205 | -0.207 | -0.248 |
| Per pupil expenditure for operation and maintenance | 0.513 | 0.264 | -0.317 | -0.120 |
| School building utilization ratio | 0.541 | 0.292 | 0.268 | 0.164 |
| Per pupil expenditure for senior high instruction | 0.566 | 0.320 | -0.140 | -0.300 |
| Region 2 | 0.582 | 0.339 | 0.204 | 0.217 |
| Region 7 | 0.596 | 0.355 | -0.076 | -0.185 |
| Ratio of the supplementary requisition levied to total operational revenue | 0.616 | 0.379 | -0.128 | 0.282 |
| Jurisdiction type | 0.642 | 0.413 | 0.352 | 0.291 |

F ratio = 6.489 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 5.4 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. The relationship between each predictor within each of these categories and the criterion variable when the values of the other predictors were held constant is summarized below. That is to say, the DPI for the total instructional time provided in social studies at the junior high level tended to be as follows:

1. Demographic characteristics
    - a. higher if the urban pupil ratio was high;
    - b. lower if the jurisdiction was located in either Region 3 or 7;
    - c. higher if the jurisdiction was located in Region 2;
    - d. higher if the school building utilization ratio was high;
    - e. higher if the jurisdiction was a separate school district;
2. Fiscal effort
    - a. higher if the ratio of supplementary requisition levied to total operational revenue was high;
3. Expenditure
    - a. higher if the per pupil expenditure for operation and maintenance was low; and,
    - b. higher if the per pupil expenditure for senior high instruction was low.

Science. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in science at the junior high level are shown in Table 5.5. Six variables entered the regression equation which had an overall F ratio of 3.849 significant at the 0.002 level. The multiple R for these variables was 0.460 and $R^2$ was 0.212. The first three vari-

Table 5.5

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Science at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.308 | 0.095 | -0.308 | -0.381 |
| Net supplementary requisition mill rate | 0.337 | 0.114 | 0.110 | 0.153 |
| Per pupil expenditure for transportation | 0.374 | 0.140 | -0.034 | -0.495 |
| Total operational expenditure per pupil | 0.403 | 0.163 | -0.011 | 0.426 |
| Ratio of SFPF grants received to total operational revenue | 0.440 | 0.194 | 0.224 | 0.233 |
| Region 2 | 0.460 | 0.212 | 0.095 | 0.135 |

F ratio = 3.849 Probability = 0.002

[a] Only includes predictors where the $R^2$ change was at least 0.010.

ables selected accounted for 14.0 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) net supplementary requisition mill rate, (3) per pupil expenditure for transportation, (4) total expenditure per pupil, (5) ratio of SFPF grants received to total operational revenue, and (6) Region 2.

Table 5.5 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in science at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was located in Region 2;
2. Fiscal effort
    a. higher if the net supplementary requisition mill rate was low;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the ratio of SFPF grants received to total operation revenue was high;
4. Expenditure
    a. higher if the per pupil expenditure for transportation was low, and;
    b. higher if the total operational expenditure per pupil was high.

Personal Development. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in personal development at the junior high level are shown in Table 5.6. Thirteen variables entered the regression equation which had an overall F ratio of 1.034 significant at the 0.010 level. The multiple R for these variables was 0.530 and $R^2$ was 0.281. The first four variables selected accounted for 14.2 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) per pupil expenditure for senior high instruction, (2) Region 2, (3) per pupil expenditure for elementary instruction, (4) amount of equalized assessment per pupil, (5) amount of supplementary requisition levied per pupil, (6) per pupil expenditure for operation and maintenance, (7) total operational revenue per pupil, (8) total operational expenditure per pupil, (9) Region 1, (10) Region 4, (11) per pupil expenditure for junior high instruction, (12) sparsity of pupil population and per pupil expenditure for administration.

Table 5.6 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in personal development at the junior high level tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was located in either Region 1, 2, or 4;
   b. lower the greater the degree of sparsity of pupil population;
2. Wealth
   a. higher if the amount of equalized assessment per pupil was high;

Table 5.6

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Personal Development at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Per pupil expenditure for senior high instruction | 0.216 | 0.047 | -0.216 | -0.321 |
| Region 2 | 0.290 | 0.084 | 0.128 | 0.349 |
| Per pupil expenditure for elementary instruction | 0.328 | 0.108 | -0.134 | -0.304 |
| Amount of equalized assessment per pupil | 0.376 | 0.142 | 0.074 | 0.334 |
| Amount of supplementary requisition levied per pupil | 0.399 | 0.159 | -0.049 | 0.025 |
| Per pupil expenditure for operation and maintenance | 0.416 | 0.173 | -0.020 | 0.159 |
| Total operational revenue per pupil | 0.434 | 0.188 | -0.116 | -1.301 |
| Total operational expenditure per pupil | 0.464 | 0.215 | -0.079 | 1.261 |
| Region 1 | 0.479 | 0.229 | -0.015 | 0.213 |
| Region 4 | 0.492 | 0.243 | 0.083 | 0.145 |
| Per pupil expenditure for junior high instruction | 0.503 | 0.253 | -0.141 | -0.150 |
| Sparsity of pupil population | 0.520 | 0.270 | -0.047 | -0.197 |
| Per pupil expenditure for administration | 0.530 | 0.281 | -0.111 | -0.138 |

F ratio = 1.034 Probability = 0.010

[a] Only includes predictors where the $R^2$ change was at least 0.010.

3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was high;
4. Revenue
    a. higher if the total operational revenue per pupil was low;
5. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low;
    b. higher if the per pupil expenditure for elementary instruction was low;
    c. higher if the per pupil expenditure for operation and maintenance was high;
    d. higher if the total operational expenditure per pupil was high;
    e. higher if the per pupil expenditure for junior high instruction was low, and;
    f. higher if the per pupil expenditure for administration was low.

Fine Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the instructional time provided in fine arts at the junior high level are shown in Table 5.7. Six variables entered the regression equation which had an overall F ratio of 7.062 significant at the 0.000 level. The multiple R for these variables was 0.575 and $R^2$ was 0.330. The first three variables selected accounted for 26.7 of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for transportation, (3) amount of equal-

Table 5.7

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Fine Arts at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.343 | 0.117 | -0.343 | -0.405 |
| Per pupil expenditure for transportation | 0.430 | 0.185 | -0.033 | -0.447 |
| Amount of equalized assessment per pupil | 0.516 | 0.267 | 0.285 | 0.291 |
| Region 5 | 0.535 | 0.286 | -0.079 | -0.148 |
| Ratio of SGR grants received to total operational revenue | 0.553 | 0.306 | -0.334 | -0.221 |
| Per pupil expenditure for senior high instruction | 0.575 | 0.330 | 0.047 | 0.166 |

F ratio = 7.062 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

ized assessment per pupil, (4) Region 5, (5) ratio of SGR grants received to total operational revenue, and (6) per pupil expenditure for senior high instruction.

Table 5.7 shows that the above predictors were measured from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in fine arts at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in Region 5;
2. Wealth
    a. higher if the amount of equalized assessment per pupil was high;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
4. Expenditure
    a. higher if the per pupil expenditure for transportation was low, and;
    b. higher if the per pupil expenditure for senior high instruction was high.

Second Languages. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in second languages at the junior high level are shown in Table 5.8. Nine variables entered the regression equation which had an overall F ratio of 6.443 significant at the 0.000 level.

Table 5.8

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Second Languages at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Region 2 | 0.379 | 0.144 | -0.379 | 0.407 |
| Per pupil expenditure for transportation | 0.459 | 0.211 | -0.263 | -0.344 |
| Amount of equalized assessment per pupil | 0.508 | 0.259 | -0.049 | 0.485 |
| Region 3 | 0.540 | 0.292 | 0.129 | 0.140 |
| Ratio of SGR grants received to total operational revenue | 0.566 | 0.321 | 0.177 | 0.272 |
| Jurisdiction type | 0.605 | 0.367 | -0.045 | -0.440 |
| Per pupil expenditures for operation and maintenance | 0.622 | 0.387 | -0.184 | -0.185 |
| Ratio of supplementary requisition levied to total operational revenue | 0.633 | 0.400 | -0.115 | -0.240 |
| Urban pupil ratio | 0.641 | 0.411 | 0.228 | 0.185 |

F ratio = 6.443 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

The multiple R for these variables was 0.641 and $R^2$ was 0.411. The first three variables selected accounted for 25.9 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) Region 2, (2) per pupil expenditure for transportation, (3) amount of equalized assessment per pupil, (4) Region 3, (5) ratio of SGR grants received to total operational revenue, (6) jurisdiction type, (7) per pupil expenditure for operation and maintenance, (8) ratio of supplementary requisition levied to total operational revenue, and (9) urban pupil ratio.

Table 5.8 shows that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in second languages at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was located in either Region 2 or 3;
    b. higher if the jurisdiction was a public school district;
    c. higher if the urban pupil ratio was high;
2. Wealth
    a. higher if the amount of equalized assessment per pupil was high;
3. Fiscal effort
    a. higher if the ratio of the supplementary requisition levied to total operational revenue was low;

4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was high;
5. Expenditure
    a. higher if the per pupil expenditure for transportation was low;
    b. higher if the per pupil expenditure for operation and maintenance was low.

Business Education. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in business education at the junior high level are shown in Table 5.9. Eight variables entered the regression equation which had an overall F ratio of 2.601 significant at the 0.014 level. The multiple R for these variables was 0.446 and $R^2$ was 0.199. The first two variables selected accounted for 11.2 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) per pupil expenditure for administration, (2) Region 4, (3) urban puil ratio, (4) total SFPF grants received per pupil, (5) Region 1, (6) school building utilization ratio, (7) unsupported debt mill rate, and (8) total operational expenditure per pupil.

Table 5.9 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in business education at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was located in Region 4;

Table 5.9

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Business Education at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Per pupil expenditure for administration | 0.287 | 0.082 | 0.287 | 0.413 |
| Region 4 | 0.335 | 0.112 | 0.148 | 0.094 |
| Urban pupil ratio | 0.356 | 0.127 | -0.099 | -0.236 |
| Total SFPF grants received per pupil | 0.385 | 0.148 | -0.027 | -0.181 |
| Region 1 | 0.401 | 0.160 | -0.055 | -0.169 |
| School building utilization ratio | 0.410 | 0.168 | -0.139 | -0.224 |
| Unsupported debt mill rate | 0.433 | 0.187 | 0.061 | 0.225 |
| Total operational expenditure per pupil | 0.446 | 0.199 | 0.098 | -0.166 |

F ratio = 2.601 Probability = 0.014

[a] Only includes predictors where the $R^2$ change was at least 0.010.

b. lower if the jurisdiction was located in Region 1;

c. higher if the urban pupil ratio was low;

d. higher if the school building utilization was low;

2. Wealth

a. higher if the unsupported debt mill rate was high;

3. Revenue

a. higher if the total SFPF grants received per pupil was low;

4. Expenditure

a. higher if the per pupil expenditure for administration was high, and;

b. higher if the total operational expenditure per pupil was low.

Home Economics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in home economics at the junior high level as shown in Table 5.10. Eleven variables entered the regression equation which had an overall F ratio of 5.555 significant at the 0.000 level. The multiple R for these variables was 0.657 and $R^2$ was 0.430. The first three variables selected accounted for 23.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for transportation, (3) ratio of SGR grants received to total operational revenue, (4) total operational expenditure per pupil, (5) amount of supplementary requisition levied per pupil, (6) Region 5, (7) per pupil expenditure for senior high instruction, (8) urban pupil ratio, (9) ratio of supplementary requisition levied to total operational revenue, (10) total operational revenue per pupil, and (11) total SGR grants received per pupil.

Table 5.10

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Home Economics at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.353 | 0.125 | -0.353 | -0.402 |
| Per pupil expenditure for transportation | 0.452 | 0.205 | -0.048 | -0.135 |
| Ratio of SGR grants received to total operational revenue | 0.485 | 0.236 | -0.284 | 0.294 |
| Total operational expenditure per pupil | 0.521 | 0.271 | 0.037 | 0.296 |
| Amount of supplementary requisition levied per pupil | 0.554 | 0.307 | 0.079 | -2.894 |
| Region 5 | 0.578 | 0.334 | -0.145 | -1.173 |
| Per pupil expenditure for senior high instruction | 0.597 | 0.356 | 0.027 | 0.170 |
| Urban pupil ratio | 0.612 | 0.375 | -0.003 | 0.442 |
| Ratio of supplementary requisition levied to total operational revenue | 0.627 | 0.393 | 0.170 | 1.661 |
| Total operational revenue per pupil | 0.637 | 0.406 | 0.017 | 1.483 |
| Total SGR grants received per pupil | 0.656 | 0.430 | -0.222 | -1.120 |

F ratio = 5.555     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 5.10 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in home economics at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in Region 5;
    c. higher if the urban pupil ratio was high;
2. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;
    b. higher if the ratio of supplementary requisition levied to total operational revenue was high;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was high;
    b. higher if the total operational revenue per pupil was high;
    c. higher if the total SGR grants received per pupil was low;
4. Expenditure
    a. higher if the per pupil expenditure for transportation was low;
    b. higher if the total operational expenditure per pupil was high, and;
    c. higher if the per pupil expenditure for senior high instruction was high.

Industrial Education (General). The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in industrial education (general) at the junior high level are shown in Table 5.11. Ten variables entered the regression equation which had an overall F ratio of 4.356 significant at the 0.000 level. The multiple R for these variables was 0.589 and $R^2$ was 0.347. The first two variables selected accounted for 21.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for transportation, (3) unsupported debt mill rate, (4) ratio of the supplementary requisition to total operational revenue, (5) amount of supplementary requisition levied per pupil, (6) per pupil expenditure for elementary instruction, (7) sparsity of pupil population, (8) per pupil expenditure for senior high instruction, (9) ratio of SGR grants received to total operational revenue, and (10) total operational revenue per pupil.

Table 5.11 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in industrial education (general) at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower the greater the degree of sparsity of pupil population;
2. Wealth
    a. higher if the unsupported debt mill rate was high;

Table 5.11

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Industrial Education (General) at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.407 | 0.166 | -0.407 | -0.382 |
| Per pupil expenditure for transportation | 0.462 | 0.214 | 0.035 | 0.134 |
| Unsupported debt mill rate | 0.484 | 0.234 | 0.104 | 0.149 |
| Ratio of supplementary requisition levied to total operational revenue | 0.501 | 0.251 | 0.242 | 1.470 |
| Amount of supplementary requisition levied per pupil | 0.519 | 0.270 | 0.140 | -2.031 |
| Per pupil expenditure for elementary instruction | 0.534 | 0.286 | 0.182 | 0.172 |
| Sparsity of pupil population | 0.550 | 0.303 | 0.107 | -0.272 |
| Per pupil expenditure for senior high instruction | 0.565 | 0.319 | 0.014 | 0.144 |
| Ratio of SGR grants received to total operational revenue | 0.575 | 0.331 | -0.197 | -0.284 |
| Total operational revenue per pupil | 0.589 | 0.347 | 0.078 | 0.505 |

F ratio = 4.356     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

3. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was high;
    b. higher if the amount of supplementary requisition levied per pupil was low;
4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the total operational revenue per pupil was high;
5. Expenditure
    a. higher if the per pupil expenditure for transportation was high;
    b. higher if the per pupil expenditure for elementary instruction was high, and;
    c. higher if the per pupil expenditure for senior high instruction was high.

Other Subject Areas. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in other subject areas at the junior high level are shown in Table 5.12. Six variables entered the regression equation whch had an overall F ratio of 3.357 significant at the 0.005 level. The multiple R for these variables was 0.437 and $R^2$ was 0.190. The first three variables selected accounted for 11.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) total SGR grants received per pupil, (2) net supplementary requisition mill rate, (3) ratio of supplementary requisi-

Table 5.12

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Other Subject Areas at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Total SGR grants received per pupil | 0.223 | 0.050 | 0.223 | 0.286 |
| Net supplementary requisition mill rate | 0.283 | 0.080 | 0.150 | 0.234 |
| Ratio of supplementary requisition levied to total operational revenue | 0.336 | 0.113 | -0.003 | -0.352 |
| Jurisdiction type | 0.391 | 0.153 | -0.207 | -0.225 |
| Region 1 | 0.412 | 0.170 | -0.131 | -0.177 |
| Region 3 | 0.436 | 0.190 | -0.136 | -0.146 |

F ratio = 3.357 Probability = 0.005

[a] Only includes predictors where the $R^2$ change was at least 0.010.

tion levied to total operational revenue, (4) jurisdiction type, (5) Region 1, and (6) Region 3.

Table 5.12 shows that the above predictors were measures from only two of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in other subject areas at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 1 or 3;
2. Fiscal effort
    a. higher if the net supplementary requisition mill rate was higher, and;
    b. higher if the ratio of supplementary requisition levied to total operational revenue was low.

## Discussion of the Findings

In summary, the findings of this study related to the DPI for the total instructional time provided in each of the major subject areas at the junior high level varied significantly in terms of three dimensions outlined below:

1. In the total amount of variation that could be accounted for in terms of the set of predictor variables examined in the study. The amount of variance that was explained in each DPI is summarized below:
    a. 43.0 percent for home economics;
    b. 41.3 percent for social studies;

c. 41.1 percent for second languages;

d. 34.7 percent for industrial education (general);

e. 33.0 percent for fine arts;

f. 28.1 percent for personal development;

g. 21.2 percent for science;

h. 19.9 percent for business education;

i. 5.1 percent for language arts, and;

j. 3.5 percent for mathematics.

2. In the extent to which the most important predictor variable selected accounted for the variance found in each DPI. The findings noted were as follows:

   a. Jurisdiction type accounted for:

      i. 16.6 percent of the variation found in industrial education (general);

      ii. 12.5 percent of the variation found in home economics;

      iii. 11.7 percent of the variation found in fine arts, and;

      iv. only 3.5 percent of the variation found in mathematics.

   b. The ratio of SGR grants received to total operational revenue accounted for 9.5 percent of the variation found in science.

   c. The urban pupil ratio accounted for 15.8 percent of the variation found in social studies.

   d. The per pupil expenditure for senior high instruction accounted for 4.7 percent of the variation found in personal development.

   e. Location in Region 2 accounted for 14.4 percent of the variation found in second languages.

f. The per pupil expenditure for administration acounted for 8.2 percent of the variation found in business education.

3. In the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five categories of predictor variables had on various DPI's. These are summarized below in terms of each major category:

   a. Demographic characteristics

      i. The DPI for each of mathematics, social studies, fine arts, second languages, home economics and industrial education (general) tended to be higher if the jurisdiction was a public school district.

      ii. The DPI for each of social studies, second languages and home economics tended to be higher while that for business education tended to be lower if the urban pupil ratio was high.

      iii. The DPI for each of personal development and industrial education (general) tended to be lower the greater the degree of sparsity of pupil population.

      iv. The DPI for social studies tended to be higher while that for business education tended to be lower if the school building utilization ratio was high.

      v. The DPI for personal development tended to be higher and that for business education tended to be lower in Region 1.

      vi. The DPI for each of social studies, science, personal development and second languages tended to higher in Region 2.

vii. The DPI for social studies tended to be lower while that for second languages tended to be higher in Region 3.

viii. The DPI for each of personal development and business education tended to be higher in Region 4.

ix. The DPI for each of fine arts and home economics tended to be lower in Region 5.

x. The DPI for social studies tended to be lower in Region 7.

b. Wealth

i. The DPI for each of personal development, fine arts and second languages tended to be higher if the amount of equalized assessment per pupil was high.

ii. The DPI for each of business education and industrial education (general) tended to be higher if the unsupported debt mill rate was high.

c. Fiscal effort

i. The DPI for each of social studies, home economics and industrial education (general) tended to be higher while that for second languages tended to be lower if the ratio of supplementary requisition levied to total operational revenue was high.

ii. The DPI for each of home economics and industrial education (general) tended to be higher while that for personal development tended to be lower if the amount of supplementary requisition levied per pupil was low.

iii. The DPI for science tended to be lower if the net supplementary requisition mill rate was high.

d. Revenue

  i. The DPI for each of language arts, science, fine arts and industrial education (general) tended to be higher while that for each of second languages and home eonomics tended to be lower if the ratio of SGR grants received to total operational revenue was low.

  ii. The DPI for industrial education (general) tended to be higher while that for home economics tended to lower if the total SGR grants received per pupil was high.

  iii. The DPI for personal development tended to be higher while that for home economics tended to be lower if the total operational revenue per pupil was low.

  iv. The DPI for science tended to be higher if the ratio of SFPF grants received to total operational revenue was high.

  v. The DPI for business education tended to be higher if the total SFPF grants received per pupil was low.

e. Expenditure

  i. The DPI for each of social studies and personal development tended to be higher while that for each of fine arts, home economics and industrial education (general) tended to be lower if the per pupil expenditure for senior high instruction was low.

  ii. The DPI for each of science, fine arts, second languages and home economics tended to be higher while that for industrial education (general) tended to be lower if the per pupil expenditure for transportation was low.

iii. The DPI for each of social studies and second languages tended to be higher while that for each of personal development and business education tended to be lower if the per pupil expenditure for operation and maintenance was low.

iv. The DPI for each of science, personal development and home economics tended to be higher while that for business education tended to be lower if the total operational expenditure per pupil was high.

v. The DPI for personal development tended to be higher while that for industrial education tended to be lower if the per pupil expendiure for elementary instruction was low.

vi. The DPI for personal development tended to be higher if the per pupil expenditure for junior high instruction was low.

vii. The DPI for personal development tended to be higher while that for business education tended to be lower if the per pupil expenditure for administration was low.

## VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT JUNIOR HIGH GRADE LEVELS

This section outlines the results of the data analysis and provided a discussion of the findings with respect to Sub-problem 2.3.

### Statement of Sub-Problem 2.3

Sub-problem 2.3 was stated was follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the junior high grades?

### Findings

The nature and extent of variance of the DPI for the total instructional time provided in each of the junior high grades are shown in Table 5.13. The major findings noted were as follows:

1. The mean of the DPI for the total amount of instructional time provided in each of the junior high grades ranged from 49.6 credit-equivalent units at the grade seven level to 51.8 credit-equivalent units at the grade nine level.
2. The standard deviation of the index was 9.3 at the grade seven level and increased slightly to 10.7 at the grade nine level.

### Discussion of Findings

To a large extent, there seemed to be little difference in the average amount and extent of variation in the DPI for the total instructional time provided at each junior high grade level. However, it should be noted that school jurisdictions generally provided about 32 percent more instruction at each of the junior high grade levels than at each of the elementary grade levels.

## PREDICTORS OF VARIANCE OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT JUNIOR HIGH GRADE LEVELS

This section reports the results of the data analysis and provides a discussion of the findings with respect of Sub-problem 2.4.

Table 5.13

Extent of Variation in DPI's For Individual Grades at the Junior High Level

| Grade | Percentage of Total Program | DPI Mean | DPI Standard Deviation |
|---|---|---|---|
| 7 | 32.65 | 49.56 | 9.34 |
| 8 | 33.25 | 50.47 | 9.47 |
| 9 | 34.10 | 51.76 | 10.66 |
| Total Program | 100.00 | 151.79 | 27.02 |

## Statement of Sub-Problem 2.4

Sub-problem 2.4 was stated as follows: To what extent to certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the junior high grades?

## Findings

Grade Seven. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade seven level are shown in Table 5.14. Eight variables entered the regression equation which had an overall F ratio of 5.201 significant at the 0.000 level. The multiple R for these variables was 0.576 and $R^2$ was 0.331. The first three variables selected accounted for 22.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) per pupil expenditure for transportation; (3) jurisdiction type, (4) Region 2, (5) sparsity of pupil population, (6) per pupil expenditure for senior high instruction, (7) total operational revenue per pupil, and (8) per pupil expenditure for elementary instruction.

Table 5.14 indicates that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade seven level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in Region 2;

### Table 5.14

### Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Seven Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.297 | 0.088 | -0.297 | -0.390 |
| Per pupil expenditure for transportation | 0.402 | 0.161 | -0.168 | -0.622 |
| Jurisdiction type | 0.478 | 0.228 | -0.215 | -0.306 |
| Region 2 | 0.517 | 0.267 | 0.175 | 0.258 |
| Sparsity of pupil population | 0.544 | 0.295 | -0.103 | -0.147 |
| Per pupil expenditure for senior high instruction | 0.551 | 0.304 | -0.159 | -0.170 |
| Total operational revenue per pupil | 0.562 | 0.316 | -0.116 | 0.394 |
| Per pupil expenditure for elementary instruction | 0.576 | 0.331 | -0.020 | -0.171 |

F ratio = 5.201 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

c. lower the greater the degree of sparsity of pupil population;

2. Revenue

a. higher if the ratio of SGR grants received to total operational revenue was low;

b. higher if the total operational revenue per pupil was high;

3. Expenditure

a. higher if the per pupil expenditure for transportation was low;

b. higher if the per pupil expenditure for senior high instruction was low, and;

c. higher if the per pupil expenditure for elementary instruction was low.

Grade Eight. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade eight level are shown in Table 5.15. Seven variables entered the regression equation which had an overall F ratio of 5.953 significant at the 0.000 level. The multiple R for these variables was 0.574 and $R^2$ was 0.329. The first three variables selected accounted for 23.2 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) per pupil expenditure for transportation, (3) jurisdiction type, (4) Region 2, (5) amount of equalized asessment per pupil, (6) ratio of supplementary requisition levied to total operational revenue and (7) total operational expenditure per pupil.

Table 5.15 shows that the above predictors were measures from all five of the broad categories of predictor variables examined in the

Table 5.15

Proportion of Variance Predicted in the DPI Encompassing All Subject Areas at the Grade Eight Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.307 | 0.095 | -0.307 | -0.371 |
| Per pupil expenditure for transportation | 0.380 | 0.145 | -0.121 | -0.662 |
| Jurisdiction type | 0.482 | 0.232 | -0.269 | -0.383 |
| Region 2 | 0.517 | 0.267 | 0.165 | 0.207 |
| Amount of equalized assessment per pupil | 0.544 | 0.296 | 0.169 | 0.397 |
| Ratio of supplementary requisition levied to total operational revenue | 0.564 | 0.318 | 0.156 | -0.354 |
| Total operational expenditure per pupil | 0.574 | 0.329 | -0.068 | 0.211 |

F ratio = 5.953 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade eight level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in Region 2;
2. Wealth
    a. higher if the amount of equalized assessment per pupil was high;
3. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was low;
4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
5. Expenditure
    a. higher if the per pupil expenditure for transportation was low, and;
    b. higher if the total operational expenditure per pupil was high.

Grade Nine. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade nine level are shown in Table 5.16. The variables entered the regression equation which had an overall F ratio of 5.713 significant at the 0.000 level. The multiple R for these variables was 0.040 and $R^2$ was 0.411. The first three variables selected accounted for 28.3 percent of the variance noted. The pre-

Table 5.16

Proportion of Variance Predicted in the DPI Encompassing All Subject Areas at the Grade Nine Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.345 | 0.119 | -0.345 | -0.355 |
| Per pupil expenditure for transportation | 0.426 | 0.182 | -0.135 | -0.322 |
| Jurisdiction type | 0.532 | 0.283 | -0.292 | -0.321 |
| Region 2 | 0.565 | 0.319 | 0.165 | 0.248 |
| Amount of equalized assessment per pupil | 0.597 | 0.356 | 0.193 | 0.368 |
| Region 6 | 0.605 | 0.367 | 0.133 | 0.089 |
| Amount of supplementary requisition levied per pupil | 0.613 | 0.376 | 0.090 | -1.253 |
| Total operational expenditure per pupil | 0.624 | 0.390 | -0.084 | 0.446 |
| Ratio of supplementary requisition levied to total operational revenue | 0.632 | 0.400 | 0.226 | 0.729 |
| Urban pupil ratio | 0.640 | 0.411 | 0.055 | 0.214 |

F ratio = 5.713 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

dictor variables in order to relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) per pupil expenditure for transportation, (3) jurisdiction type, (4) Region 2, (5) amount of equalized assessment per pupil, (6) Region 6, (7) amount of supplementary requisition levied per pupil, (8) total operational expenditure per pupil, (9) ratio of supplementary requisition levied to total operational revenue, and (10) urban pupil ratio.

Table 5.16 shows that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade nine level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in either Region 2 or 6;
    c. higher if the urban pupil ratio was high;
2. Wealth
    a. higher if the amount of equalized assessment was high;
3. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was high;
4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;

5. Expenditure
    a. higher if the per pupil expenditure for transportation was low, and;
    b. higher if the total operational expenditure per pupil was high.

Discussion of Findings

The regression results for variation found in the DPI for the total instructional time provided at each junior high grade level indicated that:

1. The most important single predictor of variance at each junior high grade level was the ratio of SGR grants received to total operational revenue.
2. The following four predictor variables entered each of the three regression equations:
    a. the ratio of SGR grants received to total operational revenue;
    b. Region 2;
    c. jurisdiction type;
    d. per pupil expenditure for transportation.
3. The following two predictors were found to be important at only the grade eight and nine levels:
    a. amount of equalized assessment per pupil;
    b. total operational expenditure per pupil.
4. In each instance where the predictor variables listed above (in #2 and #3) entered a regression equation and the effects of other predictors were held constant, the DPI tended to be higher if the following was evident:

a. the ratio of SGR grants received to total operational revenue was low;

b. the jurisdiction was located in Region 2;

c. the jurisdiction was a public school district;

d. the per pupil expenditure for transportation was low;

e. the amount of equalized assessment per pupil was high, and;

f. the total operational expenditure per pupil was high.

## VARIATION OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE JUNIOR HIGH LEVEL

This section presents the results of the data analysis and provides a discussion of findings with regard to Sub-problem 2.5.

### Statement of Sub-Problem 2.5

Sub-problem 2.5 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided at the junior high level?

### Findings

As indicated previously in Table 5.13, the DPI for the total instructional time provided at the junior high level had a mean of 151.8 credit-equivalent units and a standard deviation of 27.0.

### Discussion of the Findings

The standard deviation of the DPI for the total instructional time provided at the junior high level was approximately three times as great as the standard deviation of the index for each junior high grade. This would suggest that there was as much variation among jurisdictions in the overall junior high DPI as there was at each of the junior high grade levels.

## PREDICTORS OF VARIANCE OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE JUNIOR HIGH LEVEL

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 2.6.

### Statement of Sub-Problem 2.6

Sub-problem 2.6 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the junior high level?

### Findings

The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the junior high level are shown in Table 5.17. Six variables entered the regression equation which had an overall F ratio of 8.814 significant at the 0.000 level. The multiple R for these variables was 0.617 and $R^2$ was 0.381. The first three variables selected accounted for 29.5 percent of the variance noted. The predictor variables noted in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) per pupil expenditure for transportation, (3) jurisdiction type, (4) Region 2, (5) amount of equalized assessment per pupil, and (5) ratio of supplementary requisition levied to total operational revenue.

Table 5.17

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Junior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.347 | 0.120 | -0.347 | -0.309 |
| Per pupil expenditure for transportation | 0.440 | 0.193 | -0.154 | -0.586 |
| Jurisdiction type | 0.543 | 0.295 | -0.284 | -0.399 |
| Region 2 | 0.582 | 0.338 | 0.184 | 0.242 |
| Amount of equalized assessment per pupil | 0.607 | 0.369 | 0.169 | 0.395 |
| Ratio of supplementary requisition levied to total operational revenue | 0.617 | 0.381 | 0.187 | -0.217 |

F ratio = 8.814    Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 5.17 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the junior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in Region 2;
2. Wealth
    a. higher if the amount of equalized assessment was high;
3. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was low;
4. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low, and;
5. Expenditure
    a. higher if the per pupil expenditure for transportation was low.

## Discussion of the Findings

The findings of the study seem to indicate that public school districts characterized by low ratios of SGR grants received to total operational revenue, and lower per pupil expenditures for transportation, were able to provide more extensive curricular program offerings at the junior high level. Generally, districts with a low equalized assessment per pupil received a large proportion of SGR grants mainly due to eligibility for supplementary requisition equalization grant entitlements. The results of this study suggest that although a fiscal equalization program was in effect, districts with low equalized assessments per pupil still remained somewhat disadvantaged.

## SUMMARY OF CHAPTER 5

The findings of this study indicate that the total instructional time provided in major subject areas at each of the junior high grade levels varied substantially among Alberta school jurisdictions. In terms of the set of predictor variables examined in the study, approximately 33 percent of the variation found could be accounted for at each of the grade seven and eight levels while approximately 41 percent could be accounted for at the grade nine level. The results of the study show that the overall DPI for each of the junior high grades tended to be higher for public school districts which had (1) a low ratio of SGR grants received to total operational revenue, and (2) a low per pupil expenditure for transportation.

The findings of the study also indicate that the DPI's representative of the total instructional time provided in each of the major areas at the junior high level varied along four major dimensions. First, in the total amount of instructional time which generally was provided in each of the major subject areas. It was noted that the greatest proportion of the junior high program was devoted to the study of language arts (21.3 percent) while the least was devoted to the study of business education (1.2 percent). Second, in the amount of variation found in the DPI for each of the major subject areas which could be accounted for in terms of the set of predictor variables examined in the study. The amount of explained variation for each of the DPI's ranged from 7.1 percent for mathematics to 43.0 percent for home economics. Third, in the nature of the predictor which was found to account for the greatest proportion of variance found in each of the DPI's. Jurisdiction type was found to be the most important single predictor of variance accounted for in the DPI for each of industrial education (general), home economics, fine arts, and mathematics. Fourth, in the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five broad categories of predictor variables had on various subject area DPI's. A total of 26 of the 32 predictor variables examined in the study entered one or more of the regression equations.

In summary, the findings of the study seem to indicate that public school districts characterized by low ratios of SGR grants received to total operational revenue, and low per pupil expenditures for transportation, were able to provide more extensive curricular program offerings at the junior high level. Generally, districts with a low equalized assessment per pupil received a large portion of SGR grants mainly due to eligibility for supplementary requisition grant entitlements. The results of this study suggest that although a fiscal equalization program is in effect, districts with low equalized assessments per pupil remain somewhat disadvantaged.

# Chapter 6

# ANALYSIS AND FINDINGS AT THE SENIOR HIGH LEVEL

This chapter presents the results of the data analysis and provides a discussion of the findings with respect to Sub-problems 3.1 through 3.6 of Problem 1. Problem 1 was stated as follows: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the senior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

## VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS AT THE SENIOR HIGH LEVEL

This section reports the results of the data analysis and provides a discussion of findings with regard to Sub-problem 3.1.

### Statement of Sub-Problem 3.1

Sub-problem 3.1 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas at the senior high level?

### Findings

The mean and standard deviation of the DPI for the total instructional time provided in each of the major subject areas at the senior high level are reported in Table 6.1. The major findings were noted as follows:

Table 6.1

Extent of Variation in DPI's for the Total Instructional Time Provided in Major Subject Areas at the Senior High Level

| Major Subject Areas | Percentage of Total Program | DPI Mean | DPI Standard Deviation |
|---|---|---|---|
| Language Arts | 10.47 | 24.77 | 14.56 |
| Mathematics | 11.45 | 27.09 | 16.78 |
| Social Studies | 8.80 | 20.81 | 12.71 |
| Science | 11.11 | 26.28 | 15.39 |
| Personal Development | 4.44 | 10.51 | 6.79 |
| Fine Arts | 7.49 | 17.71 | 18.95 |
| Second Languages | 5.56 | 13.16 | 11.57 |
| Business Education | 13.96 | 33.03 | 22.95 |
| Home Economics | 4.95 | 11.72 | 12.03 |
| Industrial Education (General) | 3.58 | 8.47 | 8.85 |
| Industrial Education (Vocational) | 11.48 | 27.16 | 66.53 |
| Other Subject Areas | 6.68 | 15.81 | 11.35 |
| Total Program | 100.00 | 236.53 | 175.56 |

1. Generally, the greatest proportion of the instructional program at the senior high level was devoted to business education (14.0 percent), followed by industrial education (vocational - 11.5 percent), mathematics (11.4 percent), science (11.1 percent), language arts (10.5 percent), social studies (8.8 percent), fine arts (7.5 percent), second languages (5.6 percent), home economics (5.0 percent), personal development (4.4 percent), industrial education (general - 3.6 percent) and other subjects (6.7 percent).
2. In each of language arts, mathematics, social studies, science, personal development and business education, the standard deviation of the DPI ranged from about one-half to two-thirds of the value of the mean. In each of remaining subject areas, the standard deviation of the DPI was almost equal to or greater than the value of the mean, thus indicating a highly skewed distribution.

### Discussion of the Findings

In summary, there was much greater variation in the extent of instructional program offering at the senior high level than previously noted at the elementary or junior high levels. As might be expected, the scope and depth of the overall provincial program of studies is considerably more extensive at the senior high level allowing for greater differentiation and specialization in student programming and vocational preparation.

## PREDICTORS OF VARIANCE OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS AT THE SENIOR HIGH LEVEL

This section outlines the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 3.2.

### Statement of Sub-Problem 3.2

Sub-problem 3.2 was stated as follows: To what extent do certain measures of demographic wealth, fiscal effort, revenue and expenditure variables amount for the variance of the DPI for the total instructional time provided in each of the major subject areas at senior high level?

### Findings

Language Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in language arts at the senior high level are shown in Table 6.2. Seven variables entered the regression equation which had an overall F ratio of 20.614 significant at the 0.000 level. The multiple R for these variables was 0.793 and $R^2$ was 0.629. The first two variables selected accounted for 48.5 percent of the variance noted. The predictor variables in order of relative importance were as

Table 6.2

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Language Arts at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.557 | 0.311 | -0.557 | -0.348 |
| Per pupil expenditure for senior high instruction | 0.697 | 0.485 | -0.517 | -0.496 |
| School building utilization ratio | 0.723 | 0.523 | 0.064 | 0.286 |
| Total SFPF grants received per pupil | 0.754 | 0.569 | 0.317 | 0.284 |
| Net supplementary requisition mill rate | 0.775 | 0.601 | 0.115 | 0.182 |
| Senior high enrolment | 0.786 | 0.618 | 0.216 | 0.121 |
| Region 1 | 0.793 | 0.629 | -0.206 | -0.113 |

F ratio = 20.614  Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) school building utilization ratio, (4) total SFPF grants received per pupil, (5) net supplementary requisition mill rate (6) senior high enrolment, and (7) Region 1.

Table 6.2 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in language arts at the senior high level tended to be as follows:

1. Demographic characteristics
   - a. higher if the jurisdiction was a public school district;
   - b. higher if the school building utilization ratio was high;
   - c. higher if the senior high enrolment was high;
   - d. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
   - a. higher if the net supplementary requisition was high;
3. Revenue
   - a. higher if the total SFPF grants received per pupil was high; and,
4. Expenditure
   - a. higher if the per pupil expenditure for senior high instruction was low.

Mathematics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in mathematics at the senior high level as shown in Table 6.3. Ten variables entered the regression equation which had an overall F ratio of 12.754 significant at the 0.000 level. The multiple

### Table 6.3

### Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Mathematics at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.536 | 0.287 | -0.536 | -0.253 |
| Per pupil expenditure for senior high instruction | 0.626 | 0.391 | -0.420 | -0.423 |
| Ratio of SGR grants received to total operational revenue | 0.668 | 0.447 | -0.497 | -0.119 |
| School building utilization ratio | 0.688 | 0.474 | 0.032 | 0.208 |
| Total SFPF grants received per pupil | 0.706 | 0.398 | 0.331 | 0.392 |
| Per pupil expenditure for transportation | 0.735 | 0.539 | 0.113 | -0.264 |
| Net supplementary requisition mill rate | 0.750 | 0.563 | 0.155 | 0.158 |
| Region 1 | 0.760 | 0.577 | -0.277 | -0.166 |
| Per pupil expenditure for operation and maintenance | 0.770 | 0.593 | 0.130 | 0.192 |
| Per pupil expenditure for administration | 0.780 | 0.609 | -0.334 | -0.151 |

F ratio = 12.754   Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

R for these variables was 0.780 and $R^2$ was 0.609. The first three variables selected accounted for 47.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) ratio of SGR grants received to total operational revenue, (4) school building utilization ratio, (5) total SFPF grants received per pupil, (6) per pupil expenditure for transportation, (7) net supplementary requisition mill rate, (8) Region 1, (9) per pupil expenditure for operation and maintenance and per pupil expenditure for administration.

Table 6.3 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in mathematics at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the net supplementary requisition was high;
3. Revenue
    a. higher if the SGR grants received to total operational revenue was low;
4. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low;

b. higher if the per pupil expenditure for transportation was low;

c. higher if the per pupil expenditure for operation and maintenance was high; and,

d. higher if the per pupil expenditure for administration was low.

Social Studies. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in social studies at the senior high level are shown in Table 6.4. Ten variables entered the regression equation which had an overall F ratio of 16.362 significant at the 0.000 level. The multiple R for these variables was 0.816 and $R^2$ was 0.666. The first three variables selected accounted for 45.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) net supplementay requisition millrate, (4) total SFPF grants received per pupil, (5) school building utilization ratio, (6) senior high enrolment, (7) Region 1, (8) per pupil expenditure for operation and maintenance, (9) ratio of SFPF grants received to total operational revenue, and (10) Region 5.

Table 6.4 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in social studies at the senior high level tended to be as follows:

1. Demographic characteristics

   a. higher if the jurisdiction was a public school district;

Table 6.4

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Social Studies at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.543 | 0.295 | -0.543 | -0.183 |
| Per pupil expenditure for senior high instruction | 0.638 | 0.407 | -0.432 | -0.462 |
| Net supplementary requisition mill rate | 0.673 | 0.453 | 0.186 | 0.246 |
| Total SFPF grants received per pupil | 0.710 | 0.504 | 0.374 | 0.242 |
| School building utilization ratio | 0.746 | 0.557 | 0.018 | 0.240 |
| Senior high enrolment | 0.773 | 0.597 | 0.283 | 0.167 |
| Region 1 | 0.791 | 0.626 | -0.277 | -0.242 |
| Per pupil expenditure for operation and maintenance | 0.799 | 0.638 | 0.197 | 0.299 |
| Ratio of SFPF grants received to total operational revenue | 0.810 | 0.655 | 0.265 | 0.202 |
| Region 5 | 0.816 | 0.666 | -0.001 | -0.111 |

F ratio = 16.362 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

   b. higher if the school building utilization ratio was high;
   c. higher if the senior high enrolment was high;
   d. lower if the jurisdiction was located in either Region 1 or 5;
2. Fiscal effort
   a. higher if the net supplementary requisition mill rate was high;
3. Revenue
   a. higher if the total SFPF grants received per pupil was high;
   b. higher if the total SFPF grants received to total operational revenue was high;
4. Expenditure
   a. higher if the per pupil expenditure for senior high instruction was low; and,
   b. higher if the per pupil expenditure for operation and maintenance was high.

Sciences. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in science at the senior high level are shown in Table 6.5. Seven variables entered the regression equation which has an overall F ratio of 29.031 significant at the 0.000 level. The multiple R for these variables was 0.840 and $R^2$ was 0.705. The first two variables selected accounted for 51.2 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) total SFPF grants received per pupil, (4) school building utilization ratio, (5) net supplementary requisition millrate, (6) Region 1, and (7) senior high enrolment.

Table 6.5

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Science at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.577 | 0.333 | -0.577 | -0.291 |
| Per pupil expenditure for senior high instruction | 0.716 | 0.521 | -0.526 | -0.523 |
| Total SFPF grants received per pupil | 0.758 | 0.575 | 0.428 | 0.393 |
| School building utilization ratio | 0.789 | 0.622 | -0.014 | 0.245 |
| Net supplementary requisition mill rate | 0.812 | 0.659 | 0.113 | 0.198 |
| Region 1 | 0.833 | 0.694 | -0.287 | -0.188 |
| Senior high enrolment | 0.840 | 0.705 | 0.202 | 0.106 |

F ratio = 29.031    Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 6.5 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in science at the senior high level tended to be as follows:

1. Demographic characteristics
    - a. higher if the jurisdiction was a public school district;
    - b. higher if the school building utilization ratio was high;
    - c. lower if the jurisdiction was located in Region 1;
    - d. higher if the senior high enrolment was high;
2. Fiscal effort
    - a. higher if the net supplementary requisition mill rate was high;
3. Revenue
    - a. higher if the total SFPF grants received per pupil was high; and,
4. Expenditure
    - a. higher if the per pupil expenditure for senior high instruction was low.

Personal Development. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in personal development at the senior high level are shown in Table 6.6. Ten variables entered the regression equation which had an overall F ratio of 10.049 significant at the 0.000 level. The multiple R for these variables was 0.742 and $R^2$ was 0.551. The first two predictors selected accounted for 39.6 percent of the variance noted. The predictor variables in order of relative importance

### Table 6.6

### Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Personal Development at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.585 | 0.343 | -0.585 | -0.416 |
| Per pupil expenditure for senior high instruction | 0.629 | 0.396 | -0.339 | -0.257 |
| Net supplementary requisition mill rate | 0.651 | 0.424 | 0.149 | 0.154 |
| Total SFPF grants received per pupil | 0.668 | 0.447 | 0.340 | 0.197 |
| School building utilization ratio | 0.692 | 0.478 | -0.007 | 0.198 |
| Senior high enrolment | 0.702 | 0.492 | 0.208 | 2.143 |
| Sparsity of pupil population | 0.709 | 0.502 | 0.408 | 0.339 |
| Junior high enrolment | 0.723 | 0.523 | 0.202 | -2.045 |
| Urban pupil ratio | 0.735 | 0.540 | -0.328 | 0.270 |
| Region 1 | 0.742 | 0.551 | -0.208 | -0.111 |

F ratio = 10.049 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) net supplementary requisition mill rate, (4) total SFPF grants received per pupil, (5) school building utilization ratio, (6) senior high enrolment, (7) sparsity of pupil population, (8) junior high enrolment, (9) urban pupil ratio, and (10) Region 1.

Table 6.6 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in personal development at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. higher if the senior high enrolment was high;
    d. higher if the jurisdiction was sparsely populated;
    e. higher if the junior high enrolment was low;
    f. higher if the urban pupil ratio was high;
    g. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the net supplementary requisition mill rate was high;
3. Revenue
    a. higher if the SFPF grants received per pupil was high; and,
4. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low.

Fine Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in fine arts at the senior high level are shown in Table 6.7. Six variables entered the regression equation which had an overall F ratio of 10.784 significant at the 0.000 level. The multiple R for these variables was 0.655 and $R^2$ was 0.429. The first three variables selected accounted for 37.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) senior high enrolment, (2) jurisdiction type, (3) per pupil expenditure for transportation, (4) ratio of SGR grants received to total operational revenue, (5) Region 6, and (7) total SFPF grants received per pupil.

Table 6.7 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in fine arts at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the senior high enrolment was high;
    b. higher if the jurisdiction was a public school district;
    c. higher if the jurisdiction was located in Region 6;
2. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the SFPF grants received per pupil was high; and,

Table 6.7

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Fine Arts at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Senior high enrolment | 0.450 | 0.202 | 0.450 | 0.334 |
| Jurisdiction type | 0.560 | 0.313 | -0.397 | -0.439 |
| Per pupil expenditure for transportation | 0.613 | 0.376 | -0.062 | -0.413 |
| Ratio of SGR grants received to total operational revenue | 0.635 | 0.403 | -0.316 | -0.135 |
| Region 6 | 0.647 | 0.418 | 0.160 | 0.113 |
| Total SFPF grants received per pupil | 0.655 | 0.429 | 0.123 | 0.150 |

F ratio = 10.784 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

3. Expenditure
    a. higher if the per pupil expenditure for transportation was low.

Second Languages. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in second languages at the senior high level are shown in Table 6.8. Nine variables entered the regression equation which had an overall F ratio of 6.812 significant at the 0.000 level. The multiple R for these variables was 0.651 and $R^2$ was 0.425. The first four variables selected accounted for 34.5 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) senior high enrolment, (2) jurisdiction type, (3) ratio of SFPF grants received to total operational revenue, (4) urban pupil ratio, (5) net supplementary requisition mill rate, (6) Region 3, (7) junior high enrolment, (8) school building utilization ratio, and (9) per pupil expenditure for elementary instruction.

Table 6.8 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in second languages at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the senior high enrolment was high;
    b. higher if the jurisdiction was a public school district;
    c. higher if the urban pupil ratio was high;
    d. higher if the jurisdiction was located in Region 3;
    e. higher if the junior high enrolment was low;

Table 6.8

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Second Languages at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Senior high enrolment | 0.422 | 0.178 | 0.422 | 2.869 |
| Jurisdiction type | 0.513 | 0.263 | -0.352 | -0.344 |
| Ratio of SFPF grants received to total operational revenue | 0.563 | 0.317 | 0.229 | 0.253 |
| Urban pupil ratio | 0.587 | 0.345 | -0.045 | 0.063 |
| Net supplementary requisition mill rate | 0.603 | 0.364 | 0.172 | 0.127 |
| Region 3 | 0.618 | 0.382 | 0.160 | 0.172 |
| Junior high enrolment | 0.633 | 0.401 | 0.408 | -2.519 |
| School building utilization ratio | 0.643 | 0.414 | 0.045 | 0.156 |
| Per pupil expenditure for elementary instruction | 0.651 | 0.425 | 0.092 | 0.120 |

F ratio = 6.812 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

f. higher if the school building utilization ratio was high;

2. Fiscal effort

    a. higher if the net supplementary requisition mill rate was high;

3. Revenue

    a. higher if the ratio of SFPF grants received to total operational revenue was high; and,

4. Expenditure

    a. higher if the per pupil expenditure for elementary instruction was high.

Business Education. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in business education at the senior high level are shown in Table 6.9. Eleven variables entered the regression equation which had an overall F ratio of 11.191 significant at the 0.000 level. The multiple R for these variables was 0.777 and $R^2$ was 0.603. The first three variables selected accounted for 44.5 percent of the variance noted. The predictor variables in order of relative importance were as follows; (1) jurisdiction type, (2) senior high enrolment, (3) ratio of SGR grants received to total operational revenue, (4) net supplementary requisition mill rate, (5) per pupil expenditure for senior high instruction, (6) school building utilization ratio, (7) per pupil expenditure for junior high instruction, (8) ratio of SFPF grants received to total operational revenue, (9) total SGR grants received per pupil, (10) urban pupil ratio, and (11) per pupil expenditure for administration.

Table 6.9

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Business Education at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.549 | 0.301 | -0.549 | -0.414 |
| Senior high enrolment | 0.617 | 0.381 | 0.362 | 1.942 |
| Ratio of SGR grants received to total operational revenue | 0.667 | 0.445 | -0.478 | -0.890 |
| Net supplementary requisition mill rate | 0.689 | 0.474 | 0.212 | 0.145 |
| Per pupil expenditure for senior high instruction | 0.711 | 0.505 | -0.308 | -0.191 |
| School building utilization ratio | 0.724 | 0.524 | 0.018 | 0.735 |
| Per pupil expenditure for junior high instruction | 0.739 | 0.546 | 0.351 | -1.135 |
| Ratio of SFPF grants received to total operational revenue | 0.748 | 0.559 | 0.232 | 0.223 |
| Total SGR grants received per pupil | 0.761 | 0.579 | -0.390 | 0.775 |
| Urban pupil ratio | 0.769 | 0.591 | -0.352 | 0.182 |
| Per pupil expenditure for administration | 0.777 | 0.603 | -0.352 | -0.134 |

F ratio = 11.191 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

Table 6.9 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in business education at the senior high level tended to be as follows:

1. Demographic characteristics
    - a. higher if the jurisdiction was a public school district;
    - b. higher if the senior high enrolment was high;
    - c. higher if the school building utilization ratio was high;
    - d. higher if the urban pupil ratio was high;
2. Fiscal effort
    - a. higher if the net supplementary requisition mill rate was high;
3. Revenue
    - a. higher if the ratio of SGR grants received to total operational revenue was low;
    - b. higher if the ratio of SFPF grants received to total operational revenue was high;
    - c. higher if the SGR grants received per pupil was high;
4. Expenditure
    - a. higher if the per pupil expenditure for senior high instruction was low;
    - b. higher if the per pupil expenditure for junior high instruction was low; and,
    - c. higher if the per pupil expenditure for administration was low.

Home Economics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in home economics at the senior high level are shown in Table 6.10. Nine variables entered the regression equation which had an overall F ratio of 0.669 significant at the 0.000 level. The multiple R for these variables was 0.669 and $R^2$ was 0.448. The first two variables selected accounted for 31.1 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) per pupil expenditure for administration, (4) Region 6, (5) school building utilization ratio, (6) elementary enrolment, (7) Region 3, (8) sparsity of pupil population, and (9) urban pupil ratio.

Table 6.10 indicates that the above predictors were measures from only two of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in home economics at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the senior high enrolment was high;
    c. higher if the jurisdiction was located in either Region 3 or 6;
    d. higher if the school building utilization ratio was high;
    e. higher if the elementary enrolment was low;
    f. higher if the jurisdiction was sparsely populated;
    g. higher if the urban pupil ratio was high; and,

Table 6.10

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Home Economics at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.436 | 0.190 | -0.436 | -0.416 |
| Senior high enrolment | 0.558 | 0.311 | 0.410 | 1.457 |
| Per pupil expenditure for administration | 0.579 | 0.335 | -0.323 | -0.122 |
| Region 6 | 0.600 | 0.360 | 0.154 | 0.171 |
| School building utilization ratio | 0.613 | 0.375 | 0.153 | 0.119 |
| Elementary enrolment | 0.625 | 0.390 | 0.397 | -1.155 |
| Region 3 | 0.634 | 0.402 | 0.061 | 0.108 |
| Sparsity of pupil population | 0.642 | 0.413 | 0.229 | 0.368 |
| Urban pupil ratio | 0.669 | 0.448 | -0.094 | 0.379 |

F ratio = 7.476 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

2. Expenditure
    a. higher if the per pupil expenditure for administration was low.

Industrial Education (General). The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in industrial education (general) at the senior high level are shown in Table 6.11. Seven variables entered the regression equation which had an overll F ratio of 7.140 significant at the 0.000 level. The multiple R for these variables was 0.609 and $R^2$ was 0.370. The first variable selected accounted for 24.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) ratio of SGR grants received to total operational revenue, (3) Region 5, (4) Region 4, (5) sparsity of pupil population, (6) urban pupil ratio, and (7) unsupported debt mill rate.

From Table 6.11, it was shown that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. The relationship between each predictor within each of these categories and the criterion variable when the values of the other predictors were held constant is summarized below. That is to say, the DPI for the total instructional time provided in industrial education (general) at the senior high level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 3 or 5;
    c. higher if the jurisdiction was sparsely populated;

Table 6.11

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Industrial Education (General) at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.496 | 0.246 | -0.496 | -0.448 |
| Ratio of SGR grants received to total operational revenue | 0.518 | 0.269 | -0.347 | -0.237 |
| Region 5 | 0.542 | 0.294 | -0.076 | -0.181 |
| Region 4 | 0.567 | 0.321 | -0.086 | -0.136 |
| Sparsity of pupil population | 0.579 | 0.335 | 0.360 | 0.352 |
| Urban pupil population | 0.599 | 0.359 | -0.267 | 0.316 |
| Unsupported debt mill rate | 0.609 | 0.370 | -0.014 | 0.119 |

F ratio = 7.140 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

   d. higher if the urban pupil ratio was high;

2. Wealth
   a. higher if the unsupported debt mill rate was high; and,
3. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low.

Industrial Education (Vocational). The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in industrial education (vocational) at the senior high level are shown in Table 6.12. Eight variables entered the regression equation which had an overall F ratio of 9.188 significant at the 0.000 level. The multiple R for these variables was 0.683 and $R^2$ was 0.467. The first four variables selected accounted for 38.5 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) senior high enrolment, (2) junior high enrolment, (3) jurisdiction type, (4) per pupil expenditure for transportation, (5) elementary enrolment, (6) Region 4, and (7) amount of equalized assessment per pupil.

Table 6.12 indicates that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in industrial education (vocational) at the senior high level tended to be as follows:

1. Demographic characteristics
   a. higher if the senior high enrolment was high;
   b. higher if the junior high enrolment was low;

Table 6.12

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Industrial Education (Vocational) at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Senior high enrolment | 0.441 | 0.195 | 0.441 | 4.870 |
| Junior high enrolment | 0.529 | 0.279 | 0.417 | -7.939 |
| Jurisdiction type | 0.567 | 0.321 | -0.239 | -0.329 |
| Per pupil expenditure for transportation | 0.620 | 0.385 | -0.183 | -0.356 |
| Elementary enrolment | 0.664 | 0.440 | 0.172 | 0.159 |
| Region 4 | 0.674 | 0.454 | 0.206 | 0.176 |
| Amount of equalized assessment per pupil | 0.683 | 0.467 | 0.201 | 0.115 |

F ratio = 9.188     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

  c. higher if the jurisdiction was a public school district;
  d. higher if the elementary enrolment was high;

2. Wealth
  a. higher if the amount of equalized assessment per pupil was high; and,

3. Expenditure
  a. higher if the per pupil expenditure for transportation was low.

Other Subject Areas. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in other subject areas at the senior high level are shown in Table 6.13. Eleven variables entered the regression equation which had an overall F ratio of 4.476 significant at the 0.000 level. The multiple R for these variables was 0.615 and $R^2$ was 0.378. The first three variables selected accounted for 20.1 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SFPF grants received to total operational revenue, (2) jurisdiction type, (3) per pupil expenditure for senior high instruction, (4) school building utilization ratio, (5) Region 7, (6) Region 6, (7) ratio of supplementary requisition levied to total operational revenue, (8) total SFPF grants received per pupil, (9) per pupil expenditure for transportation, (10) ratio of SGR grants received to total operational revenue, and (11) total operation revenue per pupil.

Table 6.13 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held

Table 6.13

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Other Subject Areas at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SFPF grants received to total operational revenue | 0.310 | 0.096 | 0.310 | 0.258 |
| Jurisdiction type | 0.410 | 0.168 | -0.283 | -0.340 |
| Per pupil expenditure for senior high instruction | 0.448 | 0.201 | -0.287 | -0.181 |
| School building utilization ratio | 0.480 | 0.230 | 0.097 | 0.179 |
| Region 7 | 0.501 | 0.251 | 0.131 | 0.183 |
| Region 6 | 0.514 | 0.264 | 0.126 | 0.107 |
| Ratio of the supplementary requisition levied to total operational revenue | 0.526 | 0.277 | 0.063 | -0.477 |
| Total SFPF grants received per pupil | 0.545 | 0.297 | 0.212 | 0.226 |
| Per pupil expenditure for transportation | 0.569 | 0.324 | -0.002 | -0.519 |
| Ratio of SGR grants received to total operational revenue | 0.588 | 0.345 | -0.301 | -0.354 |
| Total operational revenue per pupil | 0.615 | 0.378 | -0.061 | 0.498 |

F ratio = 4.476 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

constant, the DPI for the total instructional time provided in other subject areas at the senior high level tended to be as follows:

1. Demographic characteristics
    - a. higher if the jurisdiction was a public school district;
    - b. higher if the school building utilization ratio was high;
    - c. higher if the jurisdiction was located in either Region 6 or 7;
2. Fiscal effort
    - a. higher if the ratio of supplementary requisition levied to total operational revenue was low;
3. Revenue
    - a. higher if the ratio of SFPF grants received to total operational revenue was high;
    - b. higher if the ratio of SGR grants received to total operational revenue was low;
    - c. higher if the total SGPF grants received per pupil was high;
    - d. higher if the total operational revenue per pupil was high;
4. Expenditure
    - a. higher if the per pupil expenditure for senior high instruction was low; and,
    - b. higher if the per pupil expenditure for transportation was low.

## Discussion of the Findings

In summary, the findings of the study related to the DPI for the total instructional time provided in each of the major subject areas at the senior high level varied significantly in terms of the total amount of variation that was accounted for by the set of predictor variables examined in the study. The total amount of variation accounted for in each DPI was as follows:

1. 70.5 percent for science;
2. 66.6 percent for social studies;
3. 62.9 percent for language arts;
4. 60.9 percent for mathematics;
5. 60.3 percent for business education;
6. 55.1 percent for personal development;
7. 46.7 percent for industrial education (vocational);
8. 44.8 percent for home economics;
9. 42.9 percent for fine arts;
10. 42.5 percent for second languages, and
11. 37.0 percent for industrial education (general).

On the other hand, there was a considerable degree of consistency found in the regression results obtained for each of the DPI's with respect to the following two dimensions:

1. In the number of instances and the extent to which the same predictor variable was found to have the most predictive value in relation to various DPI's. The following was noted:
    a. Jurisdiction type accounted for
        i. 34.3 percent of the variation found in personal development;
        ii. 33.3 percent of the variation found in science;
        iii. 31.1 percent of the variation found in language arts;
        iv. 30.1 percent of the variation found in business education;

v. 29.5 percent of the variation found in social studies;

vi. 28.7 percent of the variation found in mathematics;

vii. 24.6 percent of the variation found in industrial education (general); and,

viii. 19.0 percent of the variation found in home economics.

b. Senior high enrolment accounted for

i. 20.2 percent of the variation found in fine arts;

ii. 19.5 percent of the variation found in industrial education (vocational); and,

iii. 17.8 percent of the variation found in second languages.

2. In the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five categories of predictor variables had on various DPI's. These are summarized below in terms of each major category:

a. Demographic characteristics

i. The DPI for each of the major subject areas at the senior high level tended to be higher if the jurisdiction was a public school district.

ii. Except for mathematics and industrial education (general), the DPI for each of the remaining nine major subject areas tended to be higher if the senior high enrolment was high.

iii. Except for fine arts and industrial education (general), the DPI for each of the remaining nine major subject areas tended to be higher if the school building utilization ratio was high.

iv. The DPI for each of personal development, second languages, business education, home economics and industrial education (general) tended to be higher if the urban pupil ratio was high.

v. The DPI for each of home eonomics and industral education (general) tended to be higher if the jurisdiction was sparsely populated.

vi. The DPI for home economics tended to be higher while that for industrial education (vocational) tended to be lower if the elementary enrolment was low.

vii. The DPI for each of language arts, mathematics, social studies, science and personal development tended to be lower in Region 1.

viii. The DPI for each of second languages and industrial education (general) tended to be lower while that of home economcis tended to be higher in Region 3.

ix. The DPI for each of social studies and industrial arts (general) tended to be lower in Region 5.

x. The DPI for each of fine arts and home economics tended to be higher in Region 6.

b. Wealth

i. The DPI for industrial education (vocational) tended to be higher if the amount of equalized assessment per pupil was high.

ii. The DPI for industrial education (general) tended to be higher if the unsupported debt mill rate was high.

c. Fiscal effort

  i. The DPI for each of language arts, mathematics, social studies, science, personal development, second languages and business education tended to be higher if the net supplementary requisition mill rate was high.

d. Revenue

  i. The DPI for each of language arts, social studies, second languages and business education tend to be higher if the ratio of SFPF grants received to total operational revenue was high.

  ii. The DPI for each of mathematics, fine arts, business education and industrial education (general) tended to be higher if the ratio of SGR grants received to total operational revenue was low.

  iii. The DPI for each of social studies, science, personal development and fine arts tended to higher if the total SFPF grants received per pupil was high.

  iv. The DPI for business education tended to be higher if the total SGR grants received per pupil was high.

e. Expenditure

  i. The DPI for each of language arts, mathematics, social studies, science, personal development and business education tended to be higher if the per pupil expenditure for senior high instruction was low.

  ii. The DPI for each of mathematics, business education, home economics, industrial education (general), and industrial education (vocational) tended to be higher the per pupil expenditure for administration was low.

iii. The DPI for each of mathematics and fine arts tended to be higher if the per pupil expenditure for transportation was low.

iv. The DPI for each of mathematics and social studies tended to be higher if the per pupil expenditure for operation and maintenance was high.

v. The DPI for second languages tended to be higher if the per pupil expenditure for elementary instruction was high.

vi. The DPI for business education tended to be higher if the per pupil expenditure for junior high instruction was low.

## VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT SENIOR HIGH GRADE LEVELS

This section outlines the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 3.3.

### Statement of Sub-Problem 3.3

Sub-problem 3.3 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the senior high grades?

## Findings

The nature and extent of variance of the DPI for the total instructional time provided in each of the senior high grades are shown in Table 6.14.

The following major findings were noted:

1. There was a slightly greater proportion of instructional time provided at the grade eleven (36.6 percent) level than at either the grade ten (30.3 percent) or twelve (33.1 percent) levels.
2. There was considerably less variation in the overall DPI at the grade ten level than that found in the overall DPI at each of the grade eleven and twelve levels.

## Discussion of the Findings

Generally, there was a substantial greater amount of instructional time provided at each of the senior high grade levels than in each of the other grades at the elementary and junior high grade levels. As well, the amount of variation found in the DPI at each senior grade level tended to increase proportionately as did the mean.

## PREDICTORS OF VARIANCE OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT SENIOR HIGH GRADE LEVELS

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 3.4.

## Statement of Sub-Problem 3.4

Sub-problem 3.4 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the senior high grades?

Table 6.14

Extent of Variation in DPI's For Individual Grades at the Senior High Level

| Grade | Percentage of Total Program | DPI | |
|---|---|---|---|
| | | Mean | Standard Deviation |
| 10 | 30.32 | 71.72 | 45.88 |
| 11 | 36.57 | 86.49 | 67.70 |
| 12 | 33.11 | 78.32 | 65.94 |
| Total Program | 100.00 | 236.53 | 175.56 |

## Findings

Grade Ten. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade ten level are shown in Table 6.15. Seven variables entered the regression equation which had an overall F ratio of 17.599 significant at the 0.000 level. The multiple R for these variables was 0.769 and $R^2$ was 0.592. The first three variables selected accounted for 47.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) per pupil expenditure for senior high instruction, (4) school building utilization ratio, (5) ratio of SFPF grants received to total operational revenue, (6) net supplementary requisition mill rate, and (6) junior high enrolment.

Table 6.15 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade ten level tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was a public school district;
   b. higher if the senior high enrolment was high;
   c. higher if the school building utilization ratio was high;
   d. higher if the junior high enrolment was low;
2. Fiscal effort
   a. higher if the net supplementary requisition mill rate was high;

Table 6.15

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Ten Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.560 | 0.313 | -0.560 | -0.520 |
| Senior high enrolment | 0.636 | 0.404 | 0.383 | 2.035 |
| Per pupil expenditure for senior high instruction | 0.689 | 0.474 | -0.372 | -0.226 |
| School building utilization ratio | 0.716 | 0.512 | 0.076 | 0.231 |
| Ratio of SFPF grants received to total operational revenue | 0.742 | 0.551 | 0.252 | 0.199 |
| Net supplementary requisition mill rate | 0.758 | 0.575 | 0.147 | 0.138 |
| Junior high enrolment | 0.760 | 0.592 | 0.373 | -1.744 |

F ratio = 17.599 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

3. Revenue
    a. higher if the ratio of SFPF grants received to total operational revenue was high; and,
4. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low.

Grade Eleven. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the grade eleven level are shown in Table 6.16. Nine variables entered the regresion equation which had an overall F ratio of 10.623 significant at the 0.000 level. The multiple R for these variables was 0.732 and $R^2$ was 0.535. The first three variables selected accounted for 42.0 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) junior high enrolment, (4) per pupil expenditure for transportation, (5) ratio of SGR grants received to total operational revenue, (6) unsupported debt mill rate, (7) total SFPF grants received per pupil, (8) school building utilization ratio, and (9) Region 2.

Table 6.16 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the grade eleven level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the senior high enrolment was high;

Table 6.16

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Eleven Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.494 | 0.244 | -0.494 | -0.517 |
| Senior high enrolment | 0.597 | 0.356 | 0.406 | 2.906 |
| Junior high enrolment | 0.648 | 0.420 | 0.388 | -2.644 |
| Per pupil expenditure for transportation | 0.673 | 0.453 | 0.031 | -0.279 |
| Ratio of SGR grants received to total operational revenue | 0.696 | 0.484 | -0.375 | -0.136 |
| Unsupported debt mill rate | 0.707 | 0.499 | 0.218 | 0.135 |
| Total SFPF grants received per pupil | 0.715 | 0.511 | 0.211 | 0.188 |
| School building utilization ratio | 0.725 | 0.525 | 0.007 | 0.161 |
| Region 2 | 0.732 | 0.535 | -0.136 | -0.106 |

F ratio = 10.623 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

   c. higher if the junior high enrolment was low;
   d. higher if the school building utilization ratio was high;
   e. lower if the jurisdiction was located in Region 2;

2. Wealth
   a. higher if the unsupported mill rate was high;
3. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low;
   b. higher if the total SFPF grants received per pupil was high; and,
4. Expenditure
   a. higher if the per pupil expenditure for transportation was low.

Grade Twelve. The regression results for the most important set of predictor variables of variance found in the DPI encompassing all subject areas at the grade twelve level are shown in Table 6.17. Six variables entered the regresion equation which had an overall F ratio of 14.723 significant at the 0.000 level. The multiple R for these variables was 0.712 and $R^2$ was 0.507. The first three variables selected accounted for 42.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) junior high enrolment, (4) per pupil expenditure for transportation, (5) ratio of SGR grants received to total operational revenue, and (6) elementary student enrolment.

Table 6.17 reveals that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held

Table 6.17

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Grade Twelve Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.465 | 0.217 | -0.465 | -0.487 |
| Senior high enrolment | 0.602 | 0.362 | 0.447 | 4.216 |
| Junior high enrolment | 0.650 | 0.423 | 0.430 | -6.208 |
| Per pupil expenditure for transportation | 0.679 | 0.461 | -0.003 | -0.246 |
| Ratio of SGR grants received to total operational revenue | 0.703 | 0.495 | -0.372 | -0.221 |
| Elementary enrolment | 0.712 | 0.507 | 0.423 | 2.315 |

F ratio = 14.723 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

constant, the DPI for the total instructional time provided at the grade twelve level tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the senior high enrolment was high;
    c. higher if the junior high enrolment was low;
    d. higher if the elementary enrolment was high;
2. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low; and,
3. Expenditure
    a. higher if the per pupil expenditure for transportation was low.

## Discussion of the Findings

In summary, the findings of the study related to the DPI for the total instructional time provided at each of the senior high levels were similar in terms of the proportion of the variance that was accounted for by the set of predictor variables examined in the study. The amount of variation accounted for in each DPI was as follows:

1. 59.2 percent at the grade ten level;
2. 53.5 percent at the grade eleven level; and,
3. 50.7 percent at the grade twelve level.

The most important single predictor variable at each grade level was jurisdiction type. The amount of variation accounted for by this predictor at each grade level is indicated below:

1. 31.3 percent at the grade ten level;

2. 24.4 percent at the grade eleven level; and,
3. 21.7 percent at the grade twelve level.

The following is a summary of the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five categories of predictor variables had on various DPI's:

1. Demographic characteristics
    - a. The DPI for each of the senior high grades tended to be higher if:
        - i. the jurisdiction was a public school district;
        - ii. the junior high enrolment was low; and,
        - iii. the senior high enrolment was high.
    - b. The DPI for each of grades ten and eleven tended to be higher if the school building utilization ratio was high.
    - c. The DPI for grade eleven tended to be lower in Region 1.
    - d. The DPI for grade twelve tended to be higher if the elementary enrolment was high.
2. Wealth
    - a. The DPI for grade eleven tended to be higher if the unsupported mill debt rate was high.
3. Fiscal effort
    - a. The DPI for grade ten tended to be higher if the net supplementary requisition mill rate was high.
4. Revenue
    - a. The DPI for each of grades ten and eleven tended to be higher if the ratio of SFPF grants received to total operational revenue was high.

   b. The DPI for each of grades eleven and twelve tended to be higher if the ratio of SGR grants received to total operational revenue was low.

5. Expenditure

   a. The DPI for each of grades eleven and twelve tended to be higher if the per pupil expenditure for transportation was low.

   b. The DPI for grade ten tended to be higher if the per pupil expenditure for senior high instruction was low.

## VARIATION OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE SENIOR HIGH LEVEL

This section presents the results of the data analysis and provides a discussion of the findings with regard to Sub-problem 3.5.

### Statement of Sub-Problem 3.5

Sub-problem 3.5 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided at the senior high level?

### Findings

As indicated previously in Table 6.14, the DPI for the total instructional time provided at the senior high level had a mean of 236.5 credit-equivalent units and a standard deviation of 175.6.

### Discussion of the Findings

The standard deviation of the DPI for the total instructional time provided at the senior high level was almost the same as the sum of the standard deviation of the DPI for the total instructional time provided at each of the senior high grades. This would seem to suggest that those jurisdictions which had a lower DPI in any one of the senior high grades, also had a similar lower DPI in each of the remaining two senior high grades.

## PREDICTORS OF VARIANCE OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED AT THE SENIOR HIGH LEVEL

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 3.6.

### Statement of Sub-Problem 3.6

Sub-problem 3.6 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided at the senior high level?

### Findings

The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided at the senior high level are shown in Table 6.18. Nine variables entered the regression equation which had an overall F ratio of 11.997 significant at the 0.000 level. The multiple R for these variables was 0.752 and $R^2$ was 0.565. The first three variables selected accounted for 43.9 percent of the variance noted. The predictor variables, in order of relative importance, were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) junior high enrolment, (4) per pupil expenditure for transportation, (5) ratio of SGR grants received to total operational revenue, (6) school building utilization ratio, (7)

Table 6.18

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided at the Senior High Level

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.512 | 0.262 | -0.512 | -0.488 |
| Senior high enrolment | 0.621 | 0.385 | 0.424 | 2.524 |
| Junior high enrolment | 0.662 | 0.439 | 0.408 | -2.235 |
| Per pupil expenditure for transportation | 0.686 | 0.471 | 0.042 | -0.275 |
| Ratio of SGR grants received to total operational revenue | 0.714 | 0.510 | -0.403 | -0.136 |
| School building utilization ratio | 0.725 | 0.525 | 0.028 | 0.167 |
| Total SFPF grants received per pupil | 0.734 | 0.538 | 0.218 | 0.217 |
| Net supplementary requisition mill rate | 0.743 | 0.551 | 0.200 | 0.139 |
| Per pupil expenditure for senior high instruction | 0.752 | 0.565 | -0.264 | -0.131 |

F ratio = 11.997 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

total SFPF grants received per pupil, (8) net supplementary requisition mill rate, and (9) per pupil expenditure for senior high instruction.

Table 6.18 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided at the senior high level tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was a public school district;
   b. higher if the senior high enrolment was high;
   c. higher if the junior high enrolment was low;
   d. higher if the school building utilization ratio was high;
2. Fiscal effort
   a. higher if the net supplementary requisition was high;
3. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low;
   b. higher if the total SFPF grants received per pupil was high;
4. Expenditure
   a. higher if the per pupil expenditure for transportation was low; and,
   b. higher if the per pupil expenditure for senior high instruction was low.

## Discussion of the Findings

The findings of this study indicate that approximately one-half of the variation found in the overall DPI at the senior high level could be accounted for in terms of five predictor variables. The first two predictors selected, jurisdiction type and senior high enrolment, interacted in combination to account for approximately 39 percent of the variance noted. Generally, public school districts characterized by a high proportion of senior high students and a low proportion of junior high students, a low per pupil expenditure for transportation, and a low ratio of SGR grants received to total operational revenue were able to provide more extensive curricular programs at the senior high level.

## SUMMARY OF CHAPTER 6

The results of this study indicate that the total instructional time provided in major subject areas at each of the senior high grade levels varied substantially among Alberta school jurisdictions. In terms of the set of predictor variables examined in the study, the proportion of variation which could be accounted for in each of the grade DPI's ranged from approximately 51 percent at the grade twelve level to 59 percent at the grade ten level. Jurisdiction type and number of senior high students accounted for over one-third of the variation found at each of the senior high grade levels.

The findings of the study also show that the DPI's for each of the major subject areas at the senior high level varied along four major dimensions. First, in the total amount of instructional time which generally was provided in each of the major subject areas. It was noted that the greatest proportion of the senior high program was devoted to the study of business education (13.4 percent) while the least was devoted to the study of general industrial education (3.8 percent). Second, in the amount of variation found in the DPI for each of the major subject areas which could be accounted for in terms of the set of predictor variables examined in the study. The amount of explained variation for each of the DPI's ranged from 37.0 percent for general industrial education to 70.5 percent for science. Third, in the nature of the predictor which was found to account for the greatest proportion of variance noted in each of the DPI's. Jurisdiction type was found to be the most important single predictor of variance accounted for in the DPI for each of language arts, mathematics, social studies, science, personal development, business education, home economics, and industrial education (general). Senior high enrolment had the most predictive value for variance accounted for in the DPI for each of fine arts, industrial education (vocational), and second languages. Fourth, in the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five broad categories of predictor variables had on various subject area DPI's. A total of 23 of the 32 predictor variables examined in the study entered one or more of the regression equations.

In summary, public school districts characterized by a high proportion of senior high students and a low proportion of junior high students, a low per pupil expenditure for transportation, and a low ratio of SGR grants received to total operational revenue were able to provide more extensive curricular programs at the senior high level.

## Chapter 7

## ANALYSIS AND FINDINGS FOR MAJOR SUBJECT AREAS IN GRADES ONE THROUGH TWELVE

This chapter presents the results of the data analysis and provides a discussion of the findings with respect to Sub-problems 4.1 through 4.4 of Problem 4. Problem 4 was stated as follows: To what extent may the variance of DPI's for the total instructional time provided in major subject areas, grades one through twelve, be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

### VARIATION OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS IN GRADES ONE THROUGH TWELVE

This section reports the results of the data analysis and provides a discussion of findings with regard to Sub-problem 4.1.

#### Statement of Sub-Problem 4.1

Sub-problem 4.1 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in each of the major subject areas, grades one through twelve?

#### Findings

Table 7.1 presented below gives a summary of the nature and extent of variation found in the DPI for the total instructional time provided in each of the major subject areas, grades one through twelve. It was found that the overall allocation of instructional time to various subject areas, grades one through twelve, was approximately as follows: (1) 25 percent for language arts, (2) 34 percent for mathematics, social studies and science, (3) 18 percent for personal development and fine arts, (4) 15 percent for business education, home economics and industrial education, and (5) 8 percent for second languages and other subjects. There was considerably less variation in the DPI's for each of language arts, mathematics, social studies, science and personal development than for each of the remaining subject areas.

Table 7.1

Variation of DPI's for the Total Instructional Time Provided in Major Subject Areas in Grades One Through Twelve

| Major Subject Areas | Grades Applicable | Percentage of Total Program | DPI Mean | DPI Standard Deviation |
|---|---|---|---|---|
| Language Arts | 1-12 | 24.50 | 151.15 | 23.91 |
| Mathematics | 1-12 | 13.23 | 81.64 | 19.18 |
| Social Studies | 1-12 | 10.79 | 66.56 | 14.22 |
| Science | 1-12 | 10.28 | 63.40 | 19.09 |
| Personal Development | 1-12 | 9.30 | 57.36 | 11.14 |
| Fine Arts | 1-12 | 8.61 | 53.13 | 27.39 |
| Second Languages | 1-12 | 3.86 | 23.84 | 15.96 |
| Business Education | 7-12 | 5.66 | 34.95 | 22.89 |
| Home Economics | 7-12 | 2.77 | 17.07 | 14.33 |
| Industrial Education (General) | 7-12 | 2.17 | 13.36 | 11.13 |
| Industrial Education (Vocational) | 10-12 | 4.40 | 27.16 | 66.53 |
| Other Subject Areas | 1-12 | 4.8 | 27.37 | 13.74 |
| Total Program | 1-12 | 100.00 | 617.00 | 191.02 |

### Discussion of the Findings

Generally, the DPI's for the total instructional time provided in each of the major subject areas, grades one through twelve, were much higher and were found to vary considerably less in those subject areas considered as the prescribed core curriculum at the elementary level (i.e., language arts, mathematics, social studies, science, personal development and fine arts).

## PREDICTORS OF VARIANCE OF DPI'S FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN MAJOR SUBJECT AREAS IN GRADES ONE THROUGH TWELVE

This section reports the results of the data analysis and provides a discussion of the findings with regard to Sub-problem 4.2.

### Statement of Sub-Problem 4.2

Sub-problem 4.2 was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in each of the major subject areas, grades one through twelve?

### Findings

Language Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in language arts in grades one through twelve are shown in Table 7.2. Eleven variables entered the regression equation which had an overall F ratio of 9.670 significant of the 0.000 level. The multiple R for these variables was 0.758 and $R^2$ was 0.575. The first four variables selected accounted for 48.4 percent of the variance noted. The predictor variables in order of relative importance

Table 7.2

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Language Arts in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.584 | 0.341 | -0.584 | -0.444 |
| Per pupil expenditure for senior high instruction | 0.632 | 0.399 | -0.349 | -0.242 |
| School building utilization ratio | 0.667 | 0.446 | 0.086 | 0.251 |
| Ratio of SGR grants received to total operational revenue | 0.695 | 0.483 | -0.458 | -0.303 |
| Ratio of SFPF grants received to total operational revenue | 0.702 | 0.493 | 0.232 | 0.312 |
| Per pupil expenditure for operation and maintenance | 0.718 | 0.516 | 0.206 | 0.205 |
| Per pupil expenditure for transportation | 0.729 | 0.531 | 0.202 | -0.415 |
| Total operational revenue per pupil | 0.735 | 0.541 | 0.119 | 0.641 |
| Amount of supplementary requisition levied per pupil | 0.744 | 0.553 | 0.245 | -0.303 |
| Unsupported debt mill rate | 0.751 | 0.565 | -0.076 | -0.172 |
| Per pupil expenditure for junior high instruction | 0.758 | 0.575 | -0.207 | -0.123 |

F ratio = 9.670 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

were was follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) school building utilization ratio, (4) ratio of SGR grants received to total operational revenue, (5) ratio of SFPF grants received to total operational revenue, (6) per pupil expenditure for operation and maintenance, (7) per pupil expenditure for transportation, (8) total operational revenue per pupil, (9) amount of supplementary requisition levied per pupil, (10) unsupported debt mill rate, and (11) per pupil expenditure for junior high instruction.

Table 7.2 shows that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in language arts, grades one through twelve, tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was a public school district;
   b. higher if the school building utilization ratio was high;
2. Wealth
   a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
   a. higher if the amount of supplementary requisition levied per pupil was low;
4. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low;
   b. higher if the ratio of SFPF grants received to total operational revenue was high;
   c. higher if the total operational revenue per pupil was high;

5. Expenditure

   a. higher if the per pupil expenditure for senior high instruction was low;

   b. higher if the per pupil expenditure for operation and maintenance was high;

   c. higher if the per pupil expenditure for transportation was low; and,

   d. higher if the per pupil expenditure for junior high instruction was low.

Mathematics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in mathematics in grades one through twelve are shown in Table 7.3. Ten variables entered the regression equation which had an overall F ratio of 11.620 significant at the 0.000 level. The multiple R for these variables was 0.766 and $R^2$ was 0.586. The first three variables selected accounted for 44.8 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) per pupil expenditure for administration, (4) ratio of SGR grants received to total operational revenue, (5) total SGR grants received per pupil, (6) per pupil expenditure for transportation, (7) ratio of SFPF grants received to total operational revenue, (8) school building utilization ratio, (9) senior high enrolment, and (10) junior high enrolment.

Table 7.3 indicates that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held

Table 7.3

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Mathematics in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.561 | 0.315 | -0.571 | -0.337 |
| Per pupil expenditure for senior high instruction | 0.626 | 0.392 | -0.380 | -0.265 |
| Per pupil expenditure for administration | 0.670 | 0.448 | -0.369 | -0.192 |
| Ratio of SGR grants received to total operational revenue | 0.688 | 0.474 | -0.473 | -1.146 |
| Total SGR grants received per pupil | 0.709 | 0.503 | -0.376 | 1.032 |
| Per pupil expenditure for transportation | 0.724 | 0.524 | 0.165 | -0.128 |
| Ratio of SFPF grants to total operational revenue | 0.739 | 0.546 | 0.238 | 0.196 |
| School building utilization ratio | 0.746 | 0.557 | 0.039 | 0.161 |
| Senior high enrolment | 0.753 | 0.567 | 0.253 | 2.023 |
| Junior high enrolment | 0.766 | 0.586 | 0.246 | -1.923 |

F ratio = 11.620     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

constant, the DPI for the total instructional time provided in mathematics in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. higher if the senior high enrolment was high;
    d. higher if the junior high enrolment was low;
2. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the SGR grants received per pupil was high;
    c. higher if the SFPF grants received to total operational revenue was high;
3. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low;
    b. higher if the per pupil expenditure for administration was low; and,
    c. higher if the per pupil expenditure for transportation was low.

Social Studies. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in social studies in grades one through twelve are shown in Table 7.4. Fourteen variables entered the regression equation which had an F ratio of 13.744 significant at the 0.000 level. The multiple R for these variables was 0.844 and $R^2$ was 0.712. The first four variables selected accounted for 48.8 percent of the

Table 7.4

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Social Studies in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Per pupil expenditure for senior high instruction | 0.484 | 0.234 | -0.484 | -0.564 |
| Ratio of supplementary requisition levied to total operational revenue | 0.612 | 0.375 | 0.375 | 0.999 |
| Per pupil expenditure for administration | 0.664 | 0.441 | -0.281 | -0.190 |
| School building utilization ratio | 0.698 | 0.488 | 0.115 | 0.229 |
| Total SFPF grants received per pupil | 0.734 | 0.539 | 0.278 | 0.404 |
| Net supplementary requisition mill rate | 0.764 | 0.584 | 0.225 | 0.199 |
| Region 2 | 0.775 | 0.600 | 0.002 | 0.139 |
| Urban pupil ratio | 0.786 | 0.618 | -0.117 | 0.379 |
| Jurisdiction type | 0.803 | 0.644 | -0.439 | -0.111 |
| Per pupil expenditure for operation and maintenance | 0.809 | 0.654 | 0.090 | 0.090 |
| Amount of supplementary requisition levied per pupil | 0.818 | 0.669 | 0.267 | -1.249 |
| Total operational expenditure per pupil | 0.827 | 0.684 | 0.064 | 0.660 |
| Total SGR grants received per pupil | 0.837 | 0.701 | -0.390 | -0.209 |
| Per pupil expenditure for junior high instruction | 0.844 | 0.712 | -0.188 | -0.125 |

F ratio = 13.744 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

variance noted. The predictor variables in order of relative importance were as follows: (1) per pupil expenditure for senior high instruction, (2) ratio of the supplementary requisition levied to total operational revenue, (3) per pupil expenditure for administration, (4) school building utilization ratio, (5) total SFPF grants received per pupil, (6) net supplementary requisition mill rate, (7) Region 2, (8) urban pupil ratio, (9) jurisdiction type, (10) per pupil expenditure for operation and maintenance, (11) amount of supplementary requisition levied per pupil, (12) total operational expenditure per pupil, (13) total SGR grants received per pupil, and (14) per pupil expenditure for junior high instruction.

Table 7.4 shows that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in social studies in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the school building utilization ratio was high;
    b. higher if the jurisdiction was located in Region 2;
    c. higher if the urban pupil ratio was high;
    d. higher if the jurisdiction was a public school district;
2. Fiscal effort
    a. higher if the ratio of supplementary requisition levied to total operational revenue was high;
    b. higher if the net supplementary requisition mill rate was high;

  c. higher if the amount of supplementary requisition levied per pupil was low;

3. Revenue

  a. higher if the total SFPF grants received per pupil was high;

  b. higher if the total SGR grants received per pupil was low;

4. Expenditure

  a. higher if the per pupil expenditure for senior high instruction was low;

  b. higher if the per pupil expenditure for administration was low;

  c. higher if the per pupil expenditure for operation and maintenance was high;

  d. higher if the total operational expenditure per pupil was high; and,

  e. higher if the per pupil expenditure for junior high instruction was low.

Science. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in science in grades one through twelve are shown in Table 7.5. Twelve variables entered the regression equation which had an overall F ratio of 11.987 significant at the 0.000 level. The multiple R for these variables was 0.802 and $R^2$ was 0.643. The first five variables selected accounted for 54.0 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) ratio of SGR grants received to total operational revenue, (2) jurisdiction type, (3) per pupil expenditure for senior high instruction, (4) total SFPF grants received per pupil, (5) school build-

Table 7.5

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Science in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Ratio of SGR grants received to total operational revenue | 0.544 | 0.296 | -0.544 | -0.378 |
| Jurisdiction type | 0.623 | 0.388 | -0.506 | -0.271 |
| Per pupil expenditure for senior high instruction | 0.674 | 0.455 | -0.421 | -0.389 |
| Total SFPF grants received per pupil | 0.701 | 0.492 | 0.423 | 0.262 |
| School building utilization ratio | 0.735 | 0.540 | 0.009 | 0.212 |
| Per pupil expenditure for transportation | 0.749 | 0.561 | 0.249 | -0.461 |
| Total operational expenditure per pupil | 0.754 | 0.569 | 0.137 | 0.781 |
| Ratio of SFPF grants received to total operational expenditure | 0.769 | 0.591 | 0.371 | 0.231 |
| Amount of supplementary requisition levied per pupil | 0.779 | 0.607 | 0.277 | -0.308 |
| Per pupil expenditure for elementary instruction | 0.786 | 0.618 | 0.055 | -0.160 |
| Net supplementary requisition mill rate | 0.794 | 0.631 | 0.048 | 0.139 |
| Region 1 | 0.802 | 0.643 | -0.260 | -0.126 |

F ratio = 11.987 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

ing utilization ratio, (6) per pupil expenditure for transportation, (7) total operational expenditure per pupil, (8) ratio of SFPF grants received to total operational expenditure, (9) amount of supplementary requisition levied per pupil, (10) per pupil expenditure for elementary instruction, (11) net supplementary requisition mill rate, and (12) Region 1.

Table 7.5 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in science in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the school building utilization ratio was high;
    c. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;
    b. higher if the net supplementary requisition mill rate was high;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the total SFPF grants received per pupil was high;
    c. higher if the ratio of SFPF grants received to total operational revenue was high;

4. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low;
    b. higher if the per pupil expenditure for transportation was low;
    c. higher if the total operational expenditure per pupil was high; and,
    d. higher if the per pupil expenditure for elementary instruction was low.

Personal Development. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in personal development in grades one through twelve are shown in Table 7.6. Eight variables entered the regression equation which had an overall F ratio of 6.736 significant at the 0.000 level. The first three variables selected accounted for 30.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) per pupil expenditure for elementary instruction, (4) per pupil expenditure for administration, (5) total operational expenditure per pupil, (6) total operational revenue per pupil, (7) Region 5, and (8) ratio of SGR grants received to total operational revenue.

Table 7.6 indicates that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in personal development in grades one through twelve tended to be as follows:

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Table 7.6

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Personal Development in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.455 | 0.207 | -0.455 | -0.262 |
| Per pupil expenditure for senior high instruction | 0.514 | 0.264 | -0.322 | -0.281 |
| Per pupil expenditure for elementary instruction | 0.554 | 0.306 | -0.100 | -0.337 |
| Per pupil expenditure for administration | 0.570 | 0.325 | -0.272 | -0.246 |
| Total operational expenditure per pupil | 0.584 | 0.341 | 0.033 | 0.920 |
| Total operational revenue per pupil | 0.602 | 0.363 | 0.008 | -0.633 |
| Region 5 | 0.615 | 0.379 | -0.049 | -0.151 |
| Ratio of SGR grants received to total operational revenue | 0.625 | 0.391 | -0.363 | -0.130 |

F ratio = 6.736     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in Region 5.
2. Revenue
    a. higher if the total operational revenue per pupil was low;
    b. higher if the ratio of SGR grants received to total operational revenue was low;
3. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low;
    b. higher if the per pupil expenditure for elementary instruction was low;
    c. higher if the per pupil expenditure for administration was low; and,
    d. higher if the total operational expenditure per pupil was high.

Fine Arts. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in fine arts in grades one through twelve are shown in Table 7.7. Six variables entered the regression equation which had an overall F ratio of 11.457 significant at the 0.000 level. The multiple R for these variables was 0.667 and $R^2$ was 0.444. The first three variables selected accounted for 36.0 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) per pupil expenditure for senior high instruction, (3) per pupil expenditure for transportation, (4) ratio of

Table 7.7

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Fine Arts in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.423 | 0.179 | -0.423 | -0.288 |
| Per pupil expenditure for senior high instruction | 0.542 | 0.294 | 0.399 | 0.288 |
| Per pupil expenditure for transportation | 0.600 | 0.360 | -0.044 | -0.316 |
| Ratio of SGR grants received to total operational revenue | 0.645 | 0.416 | -0.387 | -0.230 |
| Region 6 | 0.655 | 0.429 | 0.169 | 0.149 |
| Region 3 | 0.667 | 0.444 | 0.117 | 0.128 |

F ratio = 9.030  Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

SGR grants received to total operational revenue, (5) Region 6, and (6) Region 3.

Table 7.7 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in science in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the jurisdiction was located in either Region 3 or 6;
2. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
3. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was high; and,
    b. higher if the per pupil expenditure for transportation was low.

Second Languages. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in second languages in grades one through twelve are shown in Table 7.8. Thirteen variables entered the regression equation which had an overall F ratio of 5.278 significant at the 0.000 level. The multiple R for these variables was 0.682 and $R^2$ was 0.464. The first four variables selected accounted for 26.1 percent of the variance noted. The predictor variables in order of relative impor-

Table 7.8

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Second Languages in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Senior high enrolment | 0.355 | 0.126 | 0.355 | 2.699 |
| Region 2 | 0.417 | 0.174 | 0.192 | 0.146 |
| Region 3 | 0.473 | 0.224 | 0.153 | 0.186 |
| Junior high enrolment | 0.511 | 0.261 | 0.344 | -2.380 |
| Jurisdiction type | 0.536 | 0.287 | -0.204 | -0.403 |
| Per pupil expenditure for transportation | 0.592 | 0.350 | -0.208 | -0.524 |
| Region 5 | 0.600 | 0.360 | -0.218 | -0.121 |
| Total operational expenditure per pupil | 0.608 | 0.370 | -0.084 | 0.800 |
| Per pupil expenditure for operation and maintenance | 0.630 | 0.397 | -0.105 | -0.192 |
| School building utilization ratio | 0.642 | 0.411 | 0.173 | -0.301 |
| Unsupported debt mill rate | 0.654 | 0.428 | -0.095 | -2.289 |
| Amount of supplementary requisition levied per pupil | 0.673 | 0.453 | -0.024 | -0.322 |
| Ratio of SFPF grants received to total operational revenue | 0.682 | 0.464 | 0.079 | 0.145 |

F ratio = 5.278     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

tance were as follows: (1) senior high enrolment, (2) Region 2, (3) Region 3, (4) junior high enrolment, (5) jurisdiction type, (6) per pupil expenditure for transportation, (7) Region 5, (8) total operational expenditure per pupil, (9) per pupil expenditure for operation and maintenance, (10) school building utilization ratio, (11) unsupported debt mill rate, (12) amount of supplementary requisition levied per pupil, and (13) ratio of SFPF grants received to total operational revenue.

Table 7.8 indicates that the above predictors were measures from all five of the broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in second languages in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the senior high enrolment was high;
    b. higher if the jurisdiction was located in either Region 2 or 3;
    c. higher if the junior high enrolment was low;
    d. higher if the jurisdiction was a public school district;
    e. lower if the jurisdiction was located in Region 5;
    f. higher if the school building utilization ratio was high;
2. Wealth
    a. higher if the unsupported debt mill rate was low;
3. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;

4. Revenue
    a. higher if the ratio of SFPF grants received to total operational revenue was high;
5. Expenditure
    a. higher if the per pupil expenditure for transportation was low;
    b. higher if the total operational expenditure per pupil was high; and,
    c. higher if the per pupil expenditure for operation and maintenance was low.

Business Education. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in business education in grades seven through twelve are shown in Table 7.9. Nine variables entered the regression equation which had an overall F ratio of 12.071 significant at the 0.000 level. The multiple R for these variables was 0.753 and $R^2$ was 0.567. The first three variables selected accounted for 43.4 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) ratio of SGR grants received to total operational revenue, (4) junior high enrolment, (5) school building utilization ratio, (6) net supplementary requisition mill rate, (7) per pupil expenditure for senior high instruction, (8) ratio of SFPF grants received to total operational revenue, and (9) total operational expenditure per pupil.

Table 7.9 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the

Table 7.9

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Business Education in Grades Seven Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.546 | 0.298 | -0.546 | -0.367 |
| Senior high enrolment | 0.612 | 0.374 | 0.356 | 2.503 |
| Ratio of SGR grants received to total operational revenue | 0.659 | 0.434 | -0.470 | -0.674 |
| Junior high enrolment | 0.683 | 0.466 | 0.344 | -2.247 |
| School building utilization ratio | 0.702 | 0.493 | 0.004 | 0.175 |
| Net supplementary requisition mill rate | 0.716 | 0.512 | 0.202 | 0.174 |
| Per pupil expenditure for senior high instruction | 0.733 | 0.537 | -0.321 | -0.185 |
| Ratio of SFPF grants received to total operational revenue | 0.740 | 0.547 | 0.222 | 0.198 |
| Total operational expenditure per pupil | 0.753 | 0.567 | -0.382 | 0.543 |

F ratio = 12.071 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in business education in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the senior high enrolment was high;
    c. higher if the junior high enrolment was low;
    d. higher if the school building utilization was high;
2. Fiscal effort
    a. higher if the net supplementary requisition mill rate was high;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was low;
    b. higher if the ratio of SFPF grants received to total operational revenue was high;
4. Expenditure
    a. higher if the per pupil expenditure for senior high instruction was low; and,
    b. higher if the total operational expenditure per pupil was high.

Home Economics. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in home economics in grades seven through twelve are shown in Table 7.10. Nine variables entered the regression equation which had an overall F ratio of 8.486 significant at the 0.000 level. The multiple R for these variables 0.692 and $R^2$ was 0.479. The

Table 7.10

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Home Economics in Grades Seven Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.466 | 0.217 | -0.466 | -0.433 |
| Senior high enrolment | 0.568 | 0.322 | 0.392 | 2.019 |
| Urban pupil ratio | 0.600 | 0.361 | -0.080 | 0.479 |
| Sparsity of pupil population | 0.629 | 0.396 | 0.198 | 0.327 |
| Region 5 | 0.647 | 0.418 | -0.131 | -0.182 |
| Ratio of SGR grants received to total operational revenue | 0.664 | 0.441 | -0.344 | -0.498 |
| Per pupil expenditure for administration | 0.675 | 0.455 | -0.338 | -0.178 |
| Junior high enrolment | 0.685 | 0.469 | 0.385 | -1.807 |
| Total SGR grants received per pupil | 0.692 | 0.479 | -0.271 | 0.367 |

F ratio = 8.486 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

first three variables selected accounted for 36.1 percent of the variance noted. The predictor variables in order of relative importance were as follows; 91) jurisdiction type, (2) senior high enrolment, (3) urban pupil ratio, (4) sparsity of pupil population, (5) Region 5, (6) ratio of SGR grants received to total operational revenue, (7) per pupil expenditure for administration, (8) junior high enrolment, and (9) total SGR grants received per pupil.

Table 7.10 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in home economics in grades one through twelve tended to be as follows:

1. Demographic characteristics
   a. higher if the jurisdiction was a public school district;
   b. higher if the senior high enrolment was high;
   c. higher if the urban pupil ratio was high;
   d. higher the greater the degree of sparsity of pupil population;
   e. lower if the jurisdiction was located in Region 5;
   f. higher if the junior high enrolment was low:
2. Revenue
   a. higher if the ratio of SGR grants to total operational revenue was low;
   b. higher if the SGR grants received per pupil was high; and,
3. Expenditure
   a. higher if the per pupil expenditure for administration was low.

Industrial Education (General). The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in industrial education (general) in grades seven through twelve are shown in Table 7.11. Eight variables entered the regression equation which had an overall F ratio of 7.202 significant at the 0.000 level. The multiple R for these variables was 0.638 and $R^2$ was 0.407. The first variables selected accounted for 31.3 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) Region 5, (3) ratio of SGR grants received to total operational revenue, (4) unsupported debt mill rate, (5) per pupil expenditure for transportation, (6) Region 4, (7) per pupil expenditure for elementary instruction, and (8) sparsity of pupil population.

Table 7.11 indicates that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in industrial education (general) in grades seven through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. lower if the jurisdiction was located in either Region 4 or 5;
    c. higher the greater the degree of sparsity of pupil population;
2. Wealth
    a. higher if the unsupported debt mill rate was high;

Table 7.11

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Industrial Education (General) in Grades Seven Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.534 | 0.285 | -0.534 | -0.484 |
| Region 5 | 0.559 | 0.313 | -0.100 | -0.185 |
| Ratio of SGR grants received to total operational revenue | 0.579 | 0.336 | -0.343 | -0.257 |
| Unsupported debt mill rate | 0.597 | 0.357 | 0.024 | 0.138 |
| Per pupil expenditure for transportation | 0.609 | 0.371 | 0.174 | -0.218 |
| Region 4 | 0.620 | 0.384 | -0.047 | -0.112 |
| Per pupil expenditure for elementary instruction | 0.629 | 0.395 | 0.212 | 0.122 |
| Sparsity of pupil population | 0.638 | 0.407 | 0.322 | 0.141 |

F ratio = 7.202 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

3. Revenue

   a. higher if the ratio of SGR grants received to total operational revenue was low;

4. Expenditure

   a. higher if the per pupil expenditure for transportation was low; and,

   b. higher if the per pupil expenditure for elementary instruction was high.

Other Subject Areas. The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in other subject areas in grades one through twelve are shown in Table 7.12. Eleven variables entered the regression equation which had an overall F ratio of 4.747 significant at the 0.000 level. The multiple R for these variables was 0.626 and $R^2$ was 0.392. The first five variables selected accounted for 24.6 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) amount of supplementary requisition levied per pupil, (2) per pupil expenditure for operation and maintenance, (3) per pupil expenditure for administration, (4) ratio of SGR grants received to total operational revenue, (5) Region 7, (6) school building utilization ratio, (7) total SFPF grants received per pupil, (8) Region 1, (9) per pupil expenditure for transportation, (10) total operational expenditure per pupil, and (11) total SGR grants received per pupil.

Table 7.12 reveals that the above predictors were measures from only four of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in other

Table 7.12

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Other Subject Areas in Grades One through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Amount of supplementary requisition levied per pupil | 0.341 | 0.117 | -0.342 | -0.845 |
| Per pupil expenditure for operation and maintenance | 0.389 | 0.151 | -0.332 | -0.119 |
| Per pupil expenditure for administration | 0.419 | 0.176 | 0.085 | 0.265 |
| Ratio of SGR grants received to total operational revenue | 0.457 | 0.209 | 0.026 | 0.407 |
| Region 7 | 0.496 | 0.246 | 0.063 | 0.180 |
| School building utilization ratio | 0.515 | 0.266 | 0.231 | 0.238 |
| Total SFPF grants received per pupil | 0.542 | 0.294 | -0.109 | 0.323 |
| Region 1 | 0.560 | 0.313 | -0.085 | -0.153 |
| Per pupil expenditure for transportation | 0.576 | 0.332 | -0.331 | -0.497 |
| Total operational expenditure per pupil | 0.610 | 0.372 | -0.279 | 0.831 |
| Total SGR grants received per pupil | 0.626 | 0.392 | -0.060 | -0.885 |

F ratio = 4.747 Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

subject areas in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was located in Region 7;
    b. higher if the school building utilization ratio was high;
    c. lower if the jurisdiction was located in Region 1;
2. Fiscal effort
    a. higher if the amount of supplementary requisition levied per pupil was low;
3. Revenue
    a. higher if the ratio of SGR grants received to total operational revenue was high;
    b. higher if the total SFPF grants received per pupil was high;
    c. higher if the total SGR grant received per pupil was low;
4. Expenditures
    a. higher if the per pupil expenditure for operation and maintenance was low;
    b. higher if the per pupil expenditure for administration was high;
    c. higher if the per pupil expenditure for transportation was low; and,
    d. higher if the total operational expenditure per pupil was low.

## Discussion of the Findings

Generally, the findings of the study related to the DPI's for the total instructional time provided in major subject areas, grades one through twelve, indicated that:

1. There were some differences in the extent to which the variance found in each of the DPI's could be accounted for in terms of the predictor variables examined in the study. The amount of variance accounted for in each case was as follows:
   a. 71.2 percent in social studies;
   b. 64.3 percent in science;
   c. 58.6 percent in mathematics;
   d. 57.5 percent in language arts;
   e. 56.7 percent in business education;
   f. 47.9 percent in home economics;
   g. 46.9 percent in industrial education (vocational);
   h. 46.4 percent in second languages;
   i. 44.4 percent in fine arts;
   j. 40.7 percent in industrial education (general); and,
   k. 39.1 percent for personal development.
2. The most amount of explained variance in each DPI was due to one of four predictor variables. It was found that:
   a. Jurisdiction type accounted for
      i. 34.1 percent of the variation found in language arts;
      ii. 31.5 percent of the variation found in mathematics;
      iii. 29.8 percent of the variation found in business education;
      iv. 28.5 percent of the variation found in industrial education (general);
      v. 21.7 percent of the variation found in home economics;
      vi. 20.7 percent of the variation found in personal development; and,

vii. 17.9 percent of the variation found in fine arts.

b. Senior high enrolment accounted for

  i. 19.5 percent of the variation found in industrial education (vocational); and,

  ii. 12.6 percent of the variation found in second languages.

c. The ratio of SGR grants received to total operational revenue accounted for 29.6 percent of the variation found in science.

d. The per pupil expenditure for senior high instruction accounted for 23.4 percent of the variation found in social studies.

3. There was a substantial degree of consistency noted in the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five categories of predictor variables had on various DPI's. The findings relative to each predictor within each category were as follows:

a. Demographic characteristics

  i. The DPI for each of the major subject areas tended to be higher if the jurisdiction was a public school district.

  ii. The DPI for each of language arts, mathematics, social studies, science, second languages and business education tended to be higher if the school building utilization ratio was high.

  iii. The DPI for each of mathematics, second languages, business education and home economics tended to be higher if the junior high enrolment was low and the senior high enrolment was high.

iv. The DPI for each of home economics and industrial education (general) tended to be higher the greater the degree of sparsity of pupil population.

v. The DPI for social studies tended to be higher if the urban pupil ratio was high.

vi. The DPI for science tended to be lower in Region 1.

vii. The DPI for each of social studies and second languages tended to be higher in Region 2.

viii. The DPI for each of fine arts and second languages tended to be higher in Region 3.

ix. The DPI for industrial education (general) tended to be lower in Region 4.

x. The DPI for each of personal development, second languages, home economics and industrial education (general) tended to be lower in Region 5.

xi. The DPI for fine arts tended to be higher in Region 6.

b. Wealth

i. The DPI for each of language arts, industrial education (general) and industrial education (vocational) tended to be higher while that of second languages tended to be lower if the unsupported mill rate was high.

c. Fiscal effort

i. The DPI for each of social studies, science and business education tended to be higher if the net supplementary requisition mill rate was high.

ii. The DPI for each of language arts, social studies, science and second languages tended to be higher if the amount of supplementary requisition levied per pupil was low.

iii. The DPI for social studies tended to be higher if the ratio of the supplementary requisition levied to total operational revenue was high.

d. Revenue

i. Except for second languages, the DPI for each of the major subject areas tended to be higher if the ratio of SGR grants received to total operational revenue was low.

ii. The DPI for each of language arts, mathematics, social studies, science, second languages and business education tended to be higher if the ratio of SFPF grants received to total operational revenue was high.

iii. The DPI for each of mathematics and home economics tended to be higher if the total SGR grants received per pupil were high.

iv. The DPI for language arts tended to be higher while that for personal development tended to be lower if the total operational revenue per pupil was high.

v. The DPI for science tended to be higher if the total SFPF grants received per pupil was high.

e. Expenditure

i. The DPI for each of language arts, mathematics, science, fine arts, second languages and industrial education (both general and vocational) tended to be higher if the per pupil expenditure for transportation was low.

ii. The DPI for each of language arts, mathematics, social studies, science, personal development and business education tended to be higher while that for fine arts tended to be lower if the per pupil expenditure for senior high instruction was low.

iii. The DPI for each of social studies, science, personal development, second languages and business education tended to be higher if the total operational expenditure per pupil was high.

iv. The DPI for each of mathematics, social studies, personal development and home economics tended to be higher if the per pupil expenditure for administration was low.

v. The DPI for each of language arts and social studies tended to be higher while that for second languages tended to be lower if the per pupil expenditure for operation and maintenance was high.

vi. The DPI for each of science and personal development tended to be higher while that for industrial education (general) tended to be lower if the per pupil expenditure for elementary education was low.

vii. The DPI for each of language arts and social studies tended to be higher if the per pupil expenditure for junior high instruction was low.

## VARIATION OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN GRADES ONE THROUGH TWELVE

This section presents the results of the data analysis and provides a discussion of the findings with regard to Sub-problem 4.3.

### Statement of Sub-Problem 4.3

Sub-problem 4.3 was stated as follows: What is the nature and extent of variance of the DPI for the total instructional time provided in grades one through twelve?

### Findings

As indicated previously in Table 7.1, the DPI for the total instructional time provided in grades one through twelve had a mean of 617.0 credit-equivalent units and a standard deviation of 191.0.

### Discussion of the Findings

The standard deviation of the DPI for the total instructional time provided in grades one through twelve was slightly greater than that noted at the senior high level (191 as compared to 175), and substantially greater than that noted at the junior high level (27.0) or the elementary level (13.7). This would seem to suggest that to some extent those jurisdictions which tended to have a lower DPI at one divisional level (i.e., elementary, junior or senior high) also had a lower DPI at each of the other divisional levels.

## PREDICTORS OF VARIANCE OF THE DPI FOR THE TOTAL INSTRUCTIONAL TIME PROVIDED IN GRADES ONE THROUGH TWELVE

This section reports the results of the data analysis and provides a discussion of the findings with respect to Sub-problem 4.3.

## Statement of Sub-Problem 4.4

Sub-problem 4.4. was stated as follows: To what extent do certain measures of demographic, wealth, fiscal effort, revenue and expenditure variables account for the variance of the DPI for the total instructional time provided in grades one through twelve?

## Findings

The regression results for the most important set of predictor variables of variance found in the DPI for the total instructional time provided in grades one through twelve are shown in Table 7.13. Seven variables entered the regression equation which had an overall F ratio of 14.941 significant at the 0.000 level. The multiple R for these variables was 0.743 and $R^2$ was 0.552. The first four variables selected accounted for 39.1 percent of the variance noted. The predictor variables in order of relative importance were as follows: (1) jurisdiction type, (2) senior high enrolment, (3) per pupil expenditure for transportation, (4) ratio of SGR grants received to total operational revenue, (5) junior high enrolment, (6) school building utilization ratio, and (7) total SFPF grants received per pupil.

Table 7.13 shows that the above predictors were measures from only three of the five broad categories of predictor variables examined in the study. When the effects of the other predictors were held constant, the DPI for the total instructional time provided in grades one through twelve tended to be as follows:

1. Demographic characteristics
    a. higher if the jurisdiction was a public school district;
    b. higher if the senior high enrolment was high;
    c. higher if the junior high was low;

Table 7.13

Proportion of Variance Predicted in the DPI for the Total Instructional Time Provided in Grades One Through Twelve

| Predictor[a] | Multiple R | $R^2$ | Simple R | Beta |
|---|---|---|---|---|
| Jurisdiction type | 0.513 | 0.264 | -0.513 | -0.554 |
| Senior high enrolment | 0.611 | 0.373 | 0.404 | 2.814 |
| Per pupil expenditure for transportation | 0.664 | 0.440 | 0.005 | -0.345 |
| Ratio of SGR grants received to total operational revenue | 0.701 | 0.491 | -0.414 | -0.216 |
| Junior high enrolment | 0.723 | 0.523 | 0.389 | -2.560 |
| School building utilization ratio | 0.735 | 0.541 | 0.056 | 0.167 |
| Total SFPF grants received per pupil | 0.743 | 0.552 | 0.185 | 0.154 |

F ratio = 14.941     Probability = 0.000

[a] Only includes predictors where the $R^2$ change was at least 0.010.

   d. higher if the school building utilization ratio was high;

2. Revenue
   a. higher if the ratio of SGR grants received to total operational revenue was low;
   b. higher if the total SFPF grants received per pupil was high; and,
3. Expenditure
   a. higher if the per pupil expenditure for transportation was low.

## Discussion of the Findings

The findings of the study show that approximately one-half of the variation noted in the overall DPI, grades one through twelve, could be accounted for in terms of four predictor variables examined in study. Generally, public school districts characterized by large senior high enrolments, low per pupil expenditures for transportation, and low ratios of SGR grants received to total operational revenue, were able to provide more extensive curricular programs in grades one through twelve. These findings suggest that: (1) economics of scale are operative within school jurisdictions that have large numbers of senior high students; (2) the transportation allowances provided under the School Foundation Program Regulation may not be sufficient to cover essential expenditures for conveyance of pupils; and, (3) further fiscal equalization may need to be provided under the Supplementary Requisition Equalization Grant entitlements found in the School Grant Regulations.

## SUMMARY OF CHAPTER 7

The results of this study indicate that the DPI's representative of the total instructional time provided in each of the major subject areas, grades one through twelve, varied substantially among Alberta school jurisdictions along four major dimensions. First, in the total amount of instructional time which generally was provided in each of the major subject areas, grades one through twelve. It was noted that the greatest proportion of total instructional program was devoted to the study of language arts (24.5 percent) while the least was devoted to the study of general industrial education (2.2 percent). Second, in the amount of variation found in the DPI for each of the major subject areas which could be accounted for in terms of the set of predictor variables examined in the study. The amount of explained variation for each of the DPI's ranged from approximately 39.1 percent for personal development to 71.2 percent for social studies. Third, in the nature of the predictor which was found to account for the greatest proportion of variance noted in each of the DPI's. Jurisdiction type was found to be the most important single predictor of variance accounted for in the DPI for each of language arts, mathematics, business education, industrial education (general), home economics, personal development, and fine arts. Fourth, in the impact that certain measures (i.e., when the effects of other predictors were held constant) from each of the five broad categories of predictor variables had on various subject area DPI's. A total of 27 of the 32 predictor variables examined in the study entered one or more of the regression equations.

In summary, public school districts characterized by large senior high enrolments, low per pupil expenditures for transportation, and low ratios of SGR grants received to total operational revenue, were able to provide more extensive curricular programs in grades one through twelve.

# Chapter 8

# SUMMARY, CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This final chapter contains a review of the study reported in earlier chapters. The review is organized in four sections. The first section summarizes the purpose of the study, problem statements examined, and the research design. The second section outlines the major findings and conclusions of the study. The third section contains implications of the study for future development of policy in educational finance. The final section makes suggestions for further research.

## REVIEW OF THE PROBLEM AND RESEARCH DESIGN

### Statement of the Problem

The purpose of this study was to describe the relationship between the major curricular programs provided in Alberta school systems and selected measures of demographic, wealth, fiscal effort, revenue and expenditure related variables. More specifically, this study sought to describe the extent to which any of the variation found in the amount of scheduled instruction time in major subject areas provided in public and separate school jurisdictions could be accounted for in terms of thirty-two predictor variables which were delineated for examination in the study. To complete the study, the research problem was subdivided into four distinct parts as outlined below:

Problem 1: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the elementary level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Problem 2: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the junior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Problem 3: To what extent may the variance of DPI's for the total instructional time provided in major subject areas and grades at the senior high level be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

Problem 4: To what extent may the variance of DPI's for the total instructional time provided in major subject areas, grades one through twelve, be accounted for by selected measures of demographic, wealth, fiscal effort, revenue and expenditure variables?

## Research Design

This study was designed as a first step in providing each of the following:

1. A means by which existing curricular program levels in Alberta school systems could be described for comparative purposes;

2. Provision of base line information concerning the nature and extent of variation found in program levels across the province for the 1978-79 school year; and,
3. Identification of factors considered relevant to the development of a more comprehensive approach to funding basic education (i.e., grades one through twelve) programs in the province.

Conceptualization of the District Program Index. To complete the study, a District Program Index (DPI) was developed as a means to describe school curricular program offerings in selected major subject areas at each grade level on a district-wide basis. Calculation of the DPI took into consideration two factors: (1) the amount of scheduled instructional time in school courses offered in designated major subject areas at each grade level; and, (2) the grade enrolment of individual schools within each district. The DPI was expressed in credit-equivalent units where one credit represented 25 hours of scheduled instructional time per year. In its most general form, a DPI at an individual grade level for a particular major subject area may be expressed as follows:

$$\text{DPI} = \frac{\sum_{s=1}^{n} \sum_{c=1}^{m} T_{sc} E_s}{\sum_{s=1}^{n} E_s}$$

where $E_s$ = enrolment for grade under consideration in school s
$T_{sc}$ = scheduled instruction time for course c in school s
n = number of schools in district
m = number of courses in subject area

In summary, the DPI was conceptualized as a means by which the total amount of scheduled instructional time provided in designated subject areas for each grade at the school level could be quantified on a district-wide basis taking into consideration the number of students who had access to the program. The major strength of the DPI is that it is additive, i.e., individual subject area DPI's may be added together at particular grade levels or across grade levels. The major limitation of the DPI is that it has a school enrolment bias. While the DPI reflects general student access to curricular program availability on a district basis, it does not account for actual participation rates in individual courses within a given subject area.

Analysis of the Data. The data used in the study were drawn from records maintained by the Alberta Department of Education based on information supplied by public and separate school jurisdictions. Financial records used covered the 1977 and 1978 fiscal years, and the school program information used covered the 1978 to 1979 school year.

The study was conducted in three distinct phases. The first phase of the study consisted of calculating the DPI for each major subject area at each grade level for all public and separate school districts which had operating schools during the 1978 to 1979 school year. Regional school districts and private school authorities were excluded from the study. The second phase of the study consisted of determining district values for each of the 32 predictor variables detailed in Chapter 3. The final phase of the study consisted of using a stepwise multiple regression procedure outlined in the SPSS Manual (1975:353) to determine the extent to which the variation found in selected DPI's could be acounted for in terms of the predictor variables examined in the study.

## SUMMARY OF FINDINGS AND CONCLUSIONS

The findings of the study show that compared to the average amount of instructional time provided in major subject areas at each of the senior high grade levels, 48.3 percent of that amount was provided at each of the elementary grade levels, and 64.2 percent of that amount was provided at each of the junior high grade levels. As Tables 8.1 and 8.2 indicate, substantially more variation was found in DPI's at the senior high level than was found in those at the elementary and junior high levels. The findings related to each of the four problem statements addressed in this study are outlined below.

### Findings Related to Problem One

Elementary Program Levels. Generally, the greatest proportion of the instructional program provided at the elementary level was devoted to the study of language arts (41.1 percent), followed by mathematics (15.4 percent), personal development (11.4 percent), social studies (9.5 percent), fine arts (8.9 percent), science (7.2 percent), second languages (1.7 percent), and other subjects (4.8 percent). While there appeared to be appreciable variation in the DPI for the total instructional time provided in each of the major subject areas at the elementary level, there was not any substantial variation noted in the DPI for the total instructional time provided at each of the grade levels.

Related Program Factors. As Table 8.3 indicates, the DPI for the total instructional time provided in a number of elementary subject areas and grade levels tended to be higher when each of the following was evident:

1. the urban pupil ratio was low;
2. the school building utilization ratio was high;
3. the jurisdiction was a public school district;

Table 8.1

Proportion of the Variation Accounted for in DPI's for the Total Instructional Time Provided in Major Subject Areas at Various Divisional Levels and Grades One Through Twelve

| | Elementary | | | Junior High | | | Senior High | | | All Grades | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DPI | | % | DPI | | % | DPI | | % | DPI | | % |
| Major Subject Areas | $\bar{X}$ | S.D. | V.A.F.[a] | $\bar{X}$ | S.D. | V.A.F. | $\bar{X}$ | S.D. | V.A.F. | $\bar{X}$ | S.D. | V.A.F. |
| Language Arts | 94.0 | 11.1 | 25.4 | 32.4 | 7.1 | 13.8 | 24.8 | 14.6 | 62.9 | 151.2 | 23.9 | 57.5 |
| Mathematics | 35.2 | 4.1 | 20.6 | 19.4 | 3.6 | 7.1 | 27.1 | 16.8 | 60.9 | 81.6 | 19.2 | 58.6 |
| Social Studies | 22.8 | 4.2 | 27.7 | 24.0 | 5.8 | 41.3 | 20.8 | 12.7 | 66.6 | 66.6 | 14.22 | 71.2 |
| Science | 16.4 | 3.7 | 32.1 | 20.8 | 6.7 | 21.2 | 26.3 | 15.4 | 70.5 | 63.4 | 19.1 | 64.3 |
| Personal Development | 26.3 | 5.3 | 26.5 | 20.6 | 5.8 | 28.1 | 10.5 | 6.8 | 55.1 | 57.4 | 11.1 | 39.1 |
| Fine Arts | 20.3 | 3.2 | 35.0 | 15.1 | 10.0 | 33.0 | 17.7 | 19.0 | 42.9 | 53.1 | 27.4 | 44.4 |
| Second Languages | 3.9 | 6.3 | 33.9 | 6.8 | 6.1 | 41.1 | 13.2 | 11.6 | 42.5 | 23.8 | 16.0 | 46.4 |
| Business Education | - | - | - | 1.9 | 2.2 | 19.9 | 33.0 | 23.0 | 60.3 | 35.0 | 22.9 | 56.7 |
| Home Economics | - | - | - | 5.4 | 4.1 | 43.0 | 11.7 | 12.0 | 44.8 | 17.1 | 14.3 | 47.9 |
| Industrial Ed. (Gen.) | - | - | - | 4.9 | 3.8 | 34.7 | 8.5 | 8.9 | 37.0 | 13.4 | 11.1 | 40.7 |
| Industrial Ed. (Voc.) | - | - | - | - | - | - | 27.2 | 66.5 | 46.7 | 27.2 | 66.5 | 46.7 |
| Other Subjects | 10.9 | 11.2 | 49.8 | 0.7 | 1.3 | 19.0 | 15.8 | 11.4 | 37.8 | 27.4 | 13.7 | 39.2 |
| Total Program | 228.7 | 13.7 | 30.9 | 151.8 | 27.0 | 38.1 | 236.5 | 175.6 | 56.5 | 617.0 | 191.0 | 55.2 |

[a] % V.A.F. denotes percentage variation accounted for

## Table 8.2

## Proportion of the Variation Accounted for in the DPI's for the Total Instructional Time Provided in Major Subject Areas at Individual Grade and Divisional Levels

| Grade Level | DPI $\bar{X}$ | DPI S.D. | % V.A.F.[a] |
|---|---|---|---|
| 1 | 37.0 | 3.2 | 30.9 |
| 2 | 38.2 | 2.3 | 31.3 |
| 3 | 38.2 | 2.4 | 24.1 |
| 4 | 38.3 | 2.6 | 27.1 |
| 5 | 38.4 | 2.5 | 31.6 |
| 6 | 38.6 | 2.6 | 26.2 |
| Elementary | 228.7 | 13.7 | 30.9 |
| 7 | 49.6 | 9.3 | 33.1 |
| 8 | 50.5 | 9.5 | 32.9 |
| 9 | 51.8 | 10.7 | 41.1 |
| Junior High | 151.8 | 27.0 | 38.1 |
| 10 | 71.7 | 45.9 | 59.2 |
| 11 | 86.5 | 67.7 | 53.5 |
| 12 | 78.3 | 65.9 | 50.7 |
| Senior High | 236.5 | 175.6 | 56.5 |
| All Grades | 617.0 | 191.0 | 55.2 |

[a] % V.A.F. denotes percentage variation accounted for.

Table 8.3

A Summary of the Effects of Various Predictor Variables on the DPI's for the Total Instructional Time Provided in Major Subject Areas and Grades at the Elementary Level

| Predictors[a] | Lang. Arts | Math | Soc. Stud. | Science | Pers. Dev. | Fine Arts | Sec. Lang. | Grade 1 | 2 | 3 | 4 | 5 | 6 | Total Elem. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demographic Characteristics | | | | | | | | | | | | | | |
| Sparsity of pupil population | | | | − | | + | | | | | − | − | | |
| Urban pupil ratio | | | | − | − | − | | − | − | − | − | − | − | − |
| Elementary enrolment | | | − | | | | | | | | | | | |
| Junior high enrolment | | | | | | | | | | | | | | |
| Senior high enrolment | | | + | | | | | | | | | | | |
| Total enrolment | | | | | | | | | | | | | | |
| School building utilization ratio | | | | | − | | + | | | + | + | + | + | + |
| Region | | | | | | | | | | | | | | |
| 1 | | + | | + | | | | | − | − | | | | − |
| 2 | | | | + | + | | + | + | | | | | | |
| 3 | + | | | + | + | | | | | | | | | |
| 4 | | | | + | | | | | | | | | | |
| 5 | + | | | | | | | | | | | | | |
| 6 | | | − | + | + | | | − | − | − | | | | − |
| 7 | | | − | | | | | − | | | | | | |
| Jurisdiction type | | | | | | | | | | | | | | |
| Public | + | + | + | | | | | | + | + | + | + | + | + |
| Separate | | | | | | | | | | | | | | |
| Wealth | | | | | | | | | | | | | | |
| Amount of equalized assessment per pupil | − | | | | | | + | | | | | | | |
| Unsupported debt mill rate | | | + | + | | − | − | | | − | − | − | − | − |
| Fiscal Effort | | | | | | | | | | | | | | |
| Net supplementary requisition mill rate | | − | | | | + | | | | | − | − | | |
| Ratio of supplementary requisition to total operational revenue | | | | | | + | − | − | | | | + | | |
| Amount of supplementary requisition levied per pupil | | | | | | − | | | − | − | − | − | − | − |
| Revenue | | | | | | | | | | | | | | |
| Ratio of SFPF to total operational revenue | | | | + | | + | | | | | | + | | |
| Ratio of SGR to total operational revenue | | | − | | | − | | | − | | | | − | − |
| Total operational revenue per pupil | | | | | | | | | | | | | | |
| Total SFPF per pupil | | − | | − | | | | | | | | | | |
| Total SGR per pupil | − | | | | | | + | | | | | | | |
| Expenditure (per pupil) | | | | | | | | | | | | | | |
| Elementary instruction | | | + | | − | | + | | | | | | | |
| Junior high instruction | − | | − | | | + | | + | | | | | | |
| Senior high instruction | | | | | | | | − | | | | | + | |
| Administration | | − | | | | + | | | + | + | + | + | + | + |
| Operation and maintenance | + | | | | | | − | | | | | | | |
| Transportation | | | | | | | | | − | − | − | − | − | − |
| Total operational | | | | | | | | | + | + | + | + | + | − |

[a] Effects of predictors indicated as follows: (1) negative by minus sign (−)
(2) positive by plus sign (+)

4. the unsupported debt mill rate was low;
5. the amount of supplementary requisition levied per pupil was low;
6. the per pupil expenditure for administration was high; and,
7. the per pupil expenditure for transportation was low.

Overall Elementary DPI. The DPI for the total instructional time provided at the elementary level had a mean of 228.7 credit-equivalent units and a standard deviation of 13.7. While only 30.9 percent of the variation noted in the overall DPI could be accounted for in terms of 11 predictor variables examined in the study, two of these predictors in combination explained 14.5 percent of the variance found. These were jurisdiction type, and the amount of supplementary requisition levied per pupil. In general, public school districts which had a low supplementary requisition on a per pupil basis tended to provide more extensive curricular offerings at the elementary level.

## Findings Related to Problem Two

Junior High Program Levels. The findings of the study indicate that, generally, the greatest proportion of the instructional program at the junior high level was devoted to language arts (21.1 percent), followed by social studies (15.8 percent), science (13.7 percent), personal development (13.6 percent, mathematics (12.8 percent), fine arts (10.0 percent), second languages (4.5 percent), home economics (3.5 percent), general industrial education (3.2 percent), business education (1.3 percent), and other subjects (0.4 percent). Generally, a substantial degree of variation was found in the DPI for the instructional time provided in each of the major subject areas. An appreciable variation in the DPI for the instructional time provided at each of the grade levels was found as well.

Related Program Factors. As Table 8.4 shows, the DPI for the total instructional time provided in a number of junior high subject areas and grade levels tended to be higher when each of the following was evident:

1. the jurisdiction was located in Region 2;
2. the jurisdiction was a public school district;
3. the amount of equalized assessment per pupil was high;
4. the ratio of SGR grants to total operational revenue was low; and,
5. the per pupil expenditure for transportation was low.

Overall Junior High DPI. The DPI for the total instructional time provided at the junior high level had a mean of 151.8 credit-equivalent units and a standard deviation of 27.0. While only 38.1 percent of the variation noted in the overall DPI could be accounted for in terms of six of the predictor variables examined in the study, three of these predictors in combination explained 29.5 percent of the variation present. These were jurisdiction type, ratio of SGR grants received to total operational revenue, and per pupil expenditure for transportation. In general, public school districts characterized by a low ratio of SGR grants to total operational revenue, and low per pupil expenditures for transportation were able to provide more extensive curricular offerings at the junior high level.

## Findings Related to Problem Three

Senior High Program Levels. Generally, the greatest proportion of the instructional program at the senior high level was devoted to business education (14.0 percent), followed by industrial education (vocational--11.5 percent), mathematics (11.4 percent), science (11.1 percent), language arts (10.5 percent), social studies (8.8 percent), fine arts (7.5 percent), second languages (5.6 percent), home economics (5.0 percent), personal

### Table 8.4

A Summary of the Effects of Various Predictor Variables on DPI's for the Total Instructional Time Provided in Major Subject Areas and Grades at the Junior High Level

| Predictors[a] | Lang. Arts | Math | Soc. Stud. | Science | Pers. Dev. | Fine Arts | Sec. Lang. | Bus. Ed. | H.Ec. | I.A. Gen. | Grade | | | Total J.H.S. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 7 | 8 | 9 | |
| Demographic Characteristics | | | | | | | | | | | | | | |
| Sparsity of pupil population | | | | | − | | | | | − | − | | | |
| Urban pupil ratio | | | + | | | | + | − | + | | | | + | |
| Elementary enrolment | | | | | | | | | | | | | | |
| Junior high enrolment | | | | | | | | | | | | | | |
| Senior high enrolment | | | | | | | | | | | | | | |
| Total enrolment | | | | | | | | | | | | | | |
| School building utilization ratio | | | + | | | | | − | | | | | | |
| Region | | | | | | | | | | | | | | |
| 1 | | | | | + | | | − | | | | | | |
| 2 | | | + | + | + | | + | | | | + | + | + | + |
| 3 | | | − | | | | + | | | | | | | |
| 4 | | | | | + | | | + | | | | | | |
| 5 | | | | | | − | | | − | | | | + | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | − | | | | | | | | | | | |
| Jurisdiction type | | | | | | | | | | | | | | |
| Public | | + | | | | + | + | | + | + | + | + | + | + |
| Separate | | | + | | | | | | | | | | | |
| Wealth | | | | | | | | | | | | | | |
| Amount of equalized assessment per pupil | | | | | + | + | + | | | | | + | + | + |
| Unsupported debt mill rate | | | | | | | | + | | + | | | | |
| Fiscal Effort | | | | | | | | | | | | | | |
| Net supplementary requisition mill rate | | | | + | | | | | | | | | | |
| Ratio of supplementary requisition to total operational revenue | | | + | | | | − | | + | + | | − | + | − |
| Amount of supplementary requisition levied per pupil | | | | | + | | | | − | − | | | − | |
| Revenue | | | | | | | | | | | | | | |
| Ratio of SFPF to total operational revenue | | | | + | | | | | | | | | | |
| Ratio of SGR to total operational revenue | − | | | − | | − | | | + | | − | − | − | − |
| Total operational revenue per pupil | | | | | − | | | | + | + | + | | | |
| Total SFPF per pupil | | | | | | | | − | | | | | | |
| Total SGR per pupil | | | | | | | + | | − | − | | | | |
| Expenditure (per pupil) | | | | | | | | | | | | | | |
| Elementary instruction | | | | | − | | | | | + | − | | | |
| Junior high instruction | | | | | − | | | | | | | | | |
| Senior high instruction | | | − | | − | + | | | | + | − | | | |
| Administration | | | | | − | | | + | | | | | | |
| Operation and maintenance | | | − | | + | | − | | | | | | | |
| Transportation | | | | − | | − | | | − | + | − | − | − | − |
| Total operational | | | | + | + | | | − | + | | | + | + | |

[a] Effects of predictors indicated as follows: (1) negative by minus sign (−)
(2) positive by plus sign (+)

development (4.4 percent), industrial education (general--3.6 percent), and other subjects (6.7 percent). A substantial amount of variation was found in the DPI for the instructional time provided in each of the major subject areas. An appreciable variation in the DPI for the instructional time allocated at each of the grade levels was noted also.

Related Program Factors. As Table 8.5 reveals, the DPI for the total instructional time provided in a number of senior high subject areas and grade levels tended to be higher when each of the following was evident:

1. the urban pupil ratio was high;
2. the senior high enrolment was high in proportion to the junior high enrolment;
3. the school building utilization ratio was high;
4. the jurisdiction was a public school district;
5. the net supplementary requisition mill rate was high;
6. the ratio of SFPF grants to total operational revenue was high;
7. the ratio of SGR grants to total operational revenue was low;
8. the total SFPF grants received per pupil was high;
9. the per pupil expenditure for senior high instruction was low;
10. the per pupil expenditure for transportation was low; and,
11. the total operational expenditure per pupil was low.

Overall Senior High DPI. The DPI for the total instructional time offered at the senior high level had a mean of 236.5 credit-equivalent units and a standard deviation of 175.6. A total of 56.5 percent of the variation found in the overall DPI could be accounted for in terms of nine predictor variables examined in the study. Five of these predictors in combination explained 51.0 percent of the variation noted. These were jurisdiction type, senior high enrolment, junior high enrolment, per pupil

## Table 8.5

A Summary of the Effects of Various Predictor Variables on DPI's for the Total Instructional Time Provided in Major Subject Areas and Grades at the Senior High Level

| Predictors[a] | Lang. Arts | Math | Soc. Stud. | Science | Pers. Dev. | Fine Arts | Sec. Lang. | Bus. Ed. | H.Ec. | I.A. Gen. | I.A. Voc. | Grade 10 | 11 | 12 | Total S.H.S. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demographic Characteristics | | | | | | | | | | | | | | | |
| Sparsity of pupil population | | | | | + | | | | + | + | | | | | |
| Urban pupil ratio | | | | | + | | + | + | + | + | | | | | |
| Elementary enrolment | | | | | | | | | − | | + | | | + | |
| Junior high enrolment | | | | | − | | − | | | | − | − | − | − | − |
| Senior high enrolment | + | | + | + | + | + | + | + | + | | + | + | + | + | + |
| Total enrolment | | | | | | | | | | | | | | | |
| School building utilization ratio | + | + | + | + | + | | + | + | + | | | + | + | | + |
| Region | | | | | | | | | | | | | | | |
| 1 | − | − | − | − | − | | | | | | | | | | |
| 2 | | | | | | | | | | | | | − | | |
| 3 | | | | | | | + | | + | | | | | | |
| 4 | | | | | | | | | | − | + | | | | |
| 5 | | | − | | | | | | | − | | | | | |
| 6 | | | | | | + | | | + | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| Jurisdiction type | | | | | | | | | | | | | | | |
| Public | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Separate | | | | | | | | | | | | | | | |
| Wealth | | | | | | | | | | | | | | | |
| Amount of equalized assessment per pupil | | | | | | | | | | | + | | | | |
| Unsupported debt mill rate | | | | | | | | | | + | | | + | | |
| Fiscal Effort | | | | | | | | | | | | | | | |
| Net supplementary requisition mill rate | + | + | + | + | + | | + | + | | | | + | | | + |
| Ratio of supplementary requisition to total operational revenue | | | | | | | | | | | | | | | |
| Amount of supplementary requisition levied per pupil | | | | | | | | | | | | | | | |
| Revenue | | | | | | | | | | | | | | | |
| Ratio of SFPF to total operational revenue | | | + | | | | + | + | | | | + | + | | |
| Ratio of SGR to total operational revenue | | − | | | | − | | − | | − | | | − | − | − |
| Total operational revenue per pupil | | | | | | | | | | | | | | | |
| Total SFPF per pupil | + | + | + | + | + | + | | | | | | | | | + |
| Total SGR per pupil | | | | | | | | + | | | | | | | |
| Expenditure (per pupil) | | | | | | | | | | | | | | | |
| Elementary instruction | | | | | | | + | | | | | | | | |
| Junior high instruction | | | | | | | | − | | | | | | | |
| Senior high instruction | − | − | − | − | − | | | − | | | | − | | | − |
| Administration | | − | | | | | | − | − | | | | | | |
| Operation and maintenance | | + | + | | | | | | | | | | | | |
| Transportation | | − | | | | − | | | | | − | | − | − | − |
| Total operational | | | | | | | | | | | | | | | |

[a] Effects of predictors indicated as follows: (1) negative by minus sign (−)
(2) positive by plus sign (+)

expenditure for transportation, and ratio of SGR grants received to total operational revenue. In general, public school districts characterized by a high proportion of senior high pupils, a low proportion of junior high pupils, a low per pupil expenditure for transportation, and a low ratio of SGR grants to total operational revenue were able to provide more extensive curricular program offerings at the senior high level.

## Findings Related to Problem Four

Total Program Offering in Grades One through Twelve. In grades one through twelve, the greatest proportion of the instructional program was generally devoted to language arts (24.5 percent), followed by mathematics (13.2 percent), social studies (10.8 percent), science (10.3 percent), personal development (9.3 percent), fine arts (8.6 percent), business education (5.7 percent), vocational education (4.4 percent), second languages (3.9 percent), home economics (2.8 percent), general industrial education (2.2 percent), and other subjects (4.8 percent). As Table 8.1 indicates, a substantial degree of variation was found in the DPI for the instructional time provided in each of the major subject areas.

Related Program Factors. As Table 8.6 indicates, the DPI for the total instructional time provided in a number of subject areas, grades one through twelve, tended to be higher when each of the following was evident:

1. the senior high enrolment was high in proportion to the junior high enrolment;
2. the school building utilization ratio was high;
3. the ratio of SFPF grants to total operational revenue was high;
4. the ratio of SGR grants to total operational revenue was low;
5. the per pupil expenditure for senior high instruction was low;

## Table 8.6

A Summary of the Effects of Various Predictor Variables on the DPI's for the
Total Instructional Time Provided in Major Subject Areas
Grades One through Twelve

| Predictors[a] | Lang. Arts | Math | Soc. Stud. | Science | Pers. Dev. | Fine Arts | Sec. Lang. | Bus. Ed. | H.Ec. | I.A. Gen. | I.A. Voc. | All Subjects |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demographic Characteristics | | | | | | | | | | | | |
| Sparsity of pupil population | | | | | | | | | + | + | | |
| Urban pupil ratio | | | + | | | | | | + | | | |
| Elementary enrolment | | | | | | | | | | | + | |
| Junior high enrolment | | − | | | | | − | − | − | | − | − |
| Senior high enrolment | | + | | | | | + | + | + | | + | + |
| Total enrolment | | | | | | | | | | | | |
| School building utilization ratio | + | + | + | + | | | − | + | | | | + |
| Region | | | | | | | | | | | | |
| 1 | | | | − | | | | | | | | |
| 2 | | | + | | | | + | | | | | |
| 3 | | | | | | + | + | | | | | |
| 4 | | | | | | | | | | − | + | |
| 5 | | | | | − | | − | | − | − | | |
| 6 | | | | | | + | | | | | | |
| 7 | | | | | | | | | | | | |
| Jurisdiction type | | | | | | | | | | | | |
| Public | + | + | + | + | + | + | + | + | + | + | + | + |
| Separate | | | | | | | | | | | | |
| Wealth | | | | | | | | | | | | |
| Amount of equalized assessment per pupil | | | | | | | | | | | + | |
| Unsupported debt mill rate | − | | | | | | − | | | + | | |
| Fiscal effort | | | | | | | | | | | | |
| Net supplementary requisition mill rate | | | + | + | | | | + | | | | |
| Ratio of supplementary requisition to total operational revenue | | | + | | | | | | | | | |
| Amount of supplementary requisition levied per pupil | − | | − | − | | | − | | | | | |
| Revenue | | | | | | | | | | | | |
| Ratio of SFPF to total operational revenue | + | + | | + | | | + | + | | | | |
| Ratio of SGR to total operational revenue | − | − | | − | − | − | | − | − | − | | − |
| Total operational revenue per pupil | + | | | | − | | | | | | | |
| Total SFPF per pupil | | | + | + | | | | | | | | + |
| Total SGR per pupil | | + | − | | | | | | + | | | |
| Expenditure (per pupil) | | | | | | | | | | | | |
| Elementary instruction | | | | − | − | | | | | + | | |
| Junior high instruction | − | | − | | | | | | | | | |
| Senior high instruction | − | − | − | − | − | + | | − | | | | |
| Administration | | − | − | | − | | | | − | | | |
| Operation and maintenance | + | | + | | | | − | | | | | |
| Transportation | − | − | − | | | − | − | | | − | − | − |
| Total operational | | | + | + | + | | + | + | | | | |

[a] Effects of predictors indicated as follows: (1) negative by minus sign (−)
(2) positive by plus sign (+)

6. the per pupil expenditure for transportation was low; and,
7. the total operational expenditure per pupil was high.

Overall DPI for Grades One through Twelve. The DPI for the total instructional time provided in grades one through twelve had a mean of 617.0 credit-equivalent units and a standard deviation of 191.0. A total of 55.2 percent of the variation found in the overall DPI could be accounted for in terms of seven predictor variables examined in the study. Four of these predictor variables in combination explained 49.1 percent of the variance noted. These were jurisdiction type, senior high enrolment, per pupil expenditure for transportation, and ratio of SGR grants received to total operational revenue. In general, public school districts characterized by a large number of senior high pupils, low per pupil expenditure for transportation, and a low ratio of SGR grants to total operational revenue were able to provide a more extensive curricular program offering in grades one through twelve.

# IMPLICATIONS OF THE STUDY

This study was directed at the development of a suitable means by which district curricular program levels could be described. Its purpose was to examine the extent to which any of the variation found in district curricular program offerings could be accounted for in terms of a selected number of measures of fiscal and non-fiscal variables. The major implications of the study for future policy development in educational finance are outlined below.

## Monitoring Changes in District Program Levels

A major concern in the development and study of school finance plans has been the provision of equal educational opportunity. To a large extent, the principle of fiscal equalization (i.e., fiscal neutrality) has been applied as a first approximation of student access to programs and services. Equal access to education has been taken to mean that students must be provided with a minimum level of resources, usually termed a foundation level, to ensure equality of educational opportunity. However, as Garms et al. (1978:89) point out, the major difficulty has been "that there is no way of knowing how much education is minimally necessary."

Up to the present time, no studies have been found in which an attempt was made to describe the nature and extent of variation in major curricular programs offered, grades one through twelve, among local school districts. A major contribution of this study was the development of a District Program Index (DPI) which could be applied on a province-wide basis to monitor changes in district program levels from year to year.

## Explaining Variation in District Program Levels

Another major implication of the present study was the application of a statistical procedure (i.e., multiple linear regression analysis) useful in determining which individual measures, from a set of fiscal and non-fiscal variables, in combination tend to account for the greatest amount of variance found in particular district program offerings. Use of this technique could provide a central funding authority with information concerning the influence of certain factors within and outside the control of government, at both provincial and local levels, on district program levels. Generally, the findings of this study show that four factors accounted for approximately one-half of the variance noted in the total instructional time provided in major subject areas, grades one through twelve. These were jurisdiction type, senior high enrolment, per pupil expenditure for transportation, and ratio of SGR grants received to total operational revenue. The implications of each of these factors for school finance in Alberta are discussed below.

Jurisdiction Type. In general, public school districts provided more extensive curricular program offerings at each grade level than did separate school districts. From the data analyzed in this study, it was apparent that, generally, separate school districts have a smaller number of students as well as a smaller local property taxation base. Recognizing that separate school districts exist within the provincial educational system and receive grant entitlements the same as public school districts, further consideration needs to be given to special means to counteract the negative effects associated with low enrolments and low taxation bases. An initial point of discussion on this provincial policy matter might centre on consolidation and expansion of boundaries for separate school districts. This suggestion is put forth with the caveat that should substantial additional funding be made available to smaller jurisdictions, it be applied equally to both public and separate school jurisdictions.

Senior High Enrolment. The number of senior high students appears to have a significant impact on the overall DPI for a school jurisdiction. Generally, districts with a large number of senior high students were able to provide more extensive curricular program offerings in grades one through twelve. Under the Alberta School Foundation Program, a large proportion of general-purpose grants are paid on a weighted per pupil basis for each elementary, junior high, and senior high pupil. The findings of this study would suggest that if curricular program disparities are to be reduced additional funding needs to be made available for senior high students where enrolments tend to be low.

Transportation Allowances. The findings of the study generally indicate that where per pupil expenditure for transportation was low, the overall DPI's at all divisional levels tended to be higher. This would suggest that additional allowances paid for transportation require further consideration should greater equalization of curricular program levels among districts be desired.

SGR Grants Provided. The results of this study show that the overall DPI for grades one through twelve, as well as the DPI's for several subject areas at each of the divisional levels, tended to be higher if the ratio of SGR grants received to total operational revenue was low. In 1978, the average ratio of SGR grants to SFPF grants collected by local school jurisdictions was 1:13. Since compensatory components of the SGR grants (i.e., provisions for equalizing supplementary requisitions and declining enrolments) were not isolated for examination in the study, it is suggested that a separate analysis be made of their effects on district program levels. Nearly 25 percent of the total SGR grants paid in 1978 were of a compensatory nature.

### Reclassifying the Provincial Grant Structure

As a final observation, it is suggested that consideration be given to reclassifying the total provincial grant structure into three major components: (1) a set of general-purpose grants, (2) a set of special-purpose or categorical grants, and (3) a set of compensatory grants. This may have the effect of presenting a clearer picture of the provincial grants-in-aid program in force from year to year and for comparisons to be made in studies of the impact of the finance program in place.

## SUGGESTIONS FOR FURTHER RESEARCH

As a consequence of the present study, the following suggestions are put forth for further research:

1. While fiscal equalization remains a desirable objective, it is doubtful that its achievement necessarily removes interdistrict disparities with regard to curricular programs offered. In fact, a movement toward further equalization of district program levels could result in more noted incidences of fiscal inequality. This anomaly should be more fully explored to study its implications.

2. If the findings from a study of this nature are to be used as a basis for policy decisions, then time series analyses should be undertaken to assess the impact of any policy changes made.

3. The present study did not include consideration of specialized programs provided at the local level for learning disabled, handicapped and disadvantaged students. As the resources necessary to implement such programs have direct bearing on available district revenues, further study should be made of the impact of these programs on major curricular programs offered to regular students.

4. One impediment to extended research in school finance is the unavailability of an appropriate data base from which needed information may be drawn. In this regard, further study should be made of means to regularize the reporting function of school jurisdictions to the Alberta Department of Education with regard to programs and services provided to elementary and secondary students.

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# APPENDIX A

# CALCULATION OF THE DISTRICT PROGRAM INDEX (DPI)

In its most general form, a DPI may be expressed in mathematical terms as follows:

$$\text{DPI} = \frac{\sum_{s=1}^{n} \sum_{c=1}^{m} T_{sc} E_s}{\sum_{s=1}^{n} E_s}$$

where $E_s$ = enrolment for grade under consideration in school s
$T_{sc}$ = scheduled instructional time for course c in school s
n = number of schools in district
m = number of courses in subject area

To illustrate the calculation of the DPI, the following example is provided:

> A school district offers the following program in language arts at the grade ten level in each of its two schools:

| School | Total Grade 10 Enrolment | Course | Credit Value |
|---|---|---|---|
| A | 100 | English 10 | 5 |
| B | 400 | English 10 | 5 |
| | | English 13 | 5 |
| | | Reading 10 | 3 |

The DPI for language arts at the grade ten level is calculated as follows:

$$\text{DPI} = \frac{(5 \times 100) + [(5 + 5 + 3)(400)]}{(100 + 400)}$$

$$= \frac{500 + 13(400)}{500}$$

$$= \frac{500 + 5200}{500}$$

$$= 11.4 \text{ credit equivalent units}$$

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P19              181.0687         119.0130        121
P20              266.9163         164.8212        121
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P22              862.5372        2504.0471        121
P23              773.9917        2511.1787        121
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P5                25.2781            5.6158        121
P6                 2.4364            5.0700        121
P7                 0.6842            0.0896        121
P8                 0.1001            0.0569        121
P9                 0.1423            0.0660        121
P10             1799.0715          322.9920        121
P11             1020.9367          162.3686        121
P12             1113.0333          174.7885        121
P13             1760.2729         4109.4379         94
P14              108.2411           42.4952        121
P15              204.4040           71.6511        121
P16              132.3645          140.7312        121
P17             1760.2280          319.1153        121
P18             1229.9061          240.4994        121
P19              181.0687          119.0130        121
P20              266.9163          164.8212        121
P21             1541.4380         4533.2713        121
P22              862.5372         2504.0471        121
P23              773.9917         2511.1787        121
P24             3177.9669         9534.5266        121
JUR                0.3388            0.4753        121
R1                 0.1818            0.3873        121
R2                 0.1488            0.3573        121
R3                 0.2066            0.4066        121
R4                 0.1570            0.3653        121
R5                 0.0992            0.3001        121
R6                 0.1818            0.3873        121
R7                 0.0248            0.1561        121
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C80              57.3623          11.1370       121
C96              53.1263          27.3881       121
C112             23.8433          15.9639       121
C121             34.9489          22.8941       121
C130             17.0731          14.3324       121
C139             13.3642          11.1337       121
C144             27.1575          66.5260       121
C160             27.3723          13.7362       121
P1             1605.3203        2147.6591       121
P2                0.6875           0.3361       121
P3                0.7057           0.1676       120
P4            11684.8639        6695.4526       121
P5               25.2781           5.6158       121
P6                2.4364           5.0700       121
P7                0.6842           0.0896       121
P8                0.1001           0.0569       121
P9                0.1423           0.0660       121
P10            1799.0715         322.9920       121
P11            1020.9367         162.3686       121
P12            1113.0333         174.7885       121
P13            1760.2729        4109.4379        94
P14             108.2411          42.4952       121
P15             204.4040          71.6511       121
P16             132.3645         140.7312       121
P17            1760.2280         319.1153       121
P18            1229.9061         240.4994       121
P19             181.0687         119.0130       121
P20             266.9163         164.8212       121
P21            1541.4380        4533.2713       121
P22             862.5372        2504.0471       121
P23             773.9917        2511.1787       121
P24            3177.9669        9534.5266       121
JUR               0.3388           0.4753       121
R1                0.1818           0.3873       121
R2                0.1488           0.3573       121
R3                0.2066           0.4066       121
R4                0.1570           0.3653       121
R5                0.0992           0.3001       121
R6                0.1818           0.3873       121
R7                0.0248           0.1561       121
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=0=PUBLIC-=1=SEP                 08/25/80        PAGE  566
SENIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

VARIABLE              MEAN      STANDARD DEV      CASES

C15                24.7740           14.5639        121
C31                27.0924           16.7790        121
C47                20.8124           12.7140        121
C63                26.2820           15.3916        121
C79                10.5059            6.7924        121
C95                17.7137           18.9463        121
C111               13.1582           11.5668        121
C120               33.0331           22.9458        121
C129               11.7211           12.0317        121
C138                8.4748            8.8452        121
C143               27.1575           66.5260        121
C159               15.8096           11.3519        121
P1               1605.3203         2147.6591        121
P2                  0.6875            0.3361        121
P3                  0.7057            0.1676        120
P4              11684.8639         6695.4526        121
P5                 25.2781            5.6158        121
P6                  2.4364            5.0700        121
P7                  0.6842            0.0896        121
P8                  0.1001            0.0569        121
P9                  0.1423            0.0660        121
P10              1799.0715          322.9920        121
P11              1020.9367          162.3686        121
P12              1113.0333          174.7885        121
P13              1760.2729         4109.4379         94
P14               108.2411           42.4952        121
P15               204.4040           71.6511        121
P16               132.3645          140.7312        121
P17              1760.2280          319.1153        121
P18              1229.9061          240.4994        121
P19               181.0687          119.0130        121
P20               266.9163          164.8212        121
P21              1541.4380         4533.2713        121
P22               862.5372         2504.0471        121
P23               773.9917         2511.1787        121
P24              3177.9669         9534.5266        121
JUR                 0.3388            0.4753        121
R1                  0.1818            0.3873        121
R2                  0.1488            0.3573        121
R3                  0.2066            0.4066        121
R4                  0.1570            0.3653        121
R5                  0.0992            0.3001        121
R6                  0.1818            0.3873        121
R7                  0.0248            0.1561        121
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE 1270
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

VARIABLE              MEAN     STANDARD DEV       CASES

C161               36.9557           3.2064         121
C162               38.1942           2.2703         121
C163               38.1588           2.4200         121
C164               38.3093           2.5467         121
C165               38.4383           2.5057         121
C166               38.6184           2.5551         121
C167              228.6748          13.6985         121
C168               49.5563           9.3402         121
C169               50.4741           9.4669         121
C170               51.7629          10.6618         121
P1               1605.3203        2147.6591         121
P2                  0.6875           0.3361         121
P3                  0.7057           0.1676         120
P4              11684.8639        6695.4526         121
P5                 25.2781           5.6158         121
P6                  2.4364           5.0700         121
P7                  0.6842           0.0896         121
P8                  0.1001           0.0569         121
P9                  0.1423           0.0660         121
P10              1799.0715         322.9920         121
P11              1020.9367         162.3686         121
P12              1113.0333         174.7885         121
P13              1760.2729        4109.4379          94
P14               108.2411          42.4952         121
P15               204.4040          71.6511         121
P16               132.3645         140.7312         121
P17              1760.2280         319.1153         121
P18              1229.9061         240.4994         121
P19               181.0687         119.0130         121
P20               266.9163         164.8212         121
P21              1541.4380        4533.2713         121
P22               862.5372        2504.0471         121
P23               773.9917        2511.1787         121
P24              3177.9669        9534.5266         121
JUR                 0.3388           0.4753         121
R1                  0.1818           0.3873         121
R2                  0.1488           0.3573         121
R3                  0.2066           0.4066         121
R4                  0.1570           0.3653         121
R5                  0.0992           0.3001         121
R6                  0.1818           0.3873         121
R7                  0.0248           0.1561         121
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                            08/25/80       PAGE 1546
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

VARIABLE            MEAN      STANDARD DEV      CASES

C171            151.7933           27.0182        121
C172             71.7205           45.8781        121
C173             86.4907           67.7005        121
C174             78.3234           65.9415        121
C175            236.5345          175.5591        121
C176            617.0025          191.0194        121
P1             1605.3203         2147.6591        121
P2                0.6875            0.3361        121
P3                0.7057            0.1676        120
P4            11684.8639         6695.4526        121
P5               25.2781            5.6158        121
P6                2.4364            5.0700        121
P7                0.6842            0.0896        121
P8                0.1001            0.0569        121
P9                0.1423            0.0660        121
P10            1799.0715          322.9920        121
P11            1020.9367          162.3686        121
P12            1113.0333          174.7885        121
P13            1760.2729         4109.4379         94
P14             108.2411           42.4952        121
P15             204.4040           71.6511        121
P16             132.3645          140.7312        121
P17            1760.2280          319.1153        121
P18            1229.9061          240.4994        121
P19             181.0687          119.0130        121
P20             266.9163          164.8212        121
P21            1541.4380         4533.2713        121
P22             862.5372         2504.0471        121
P23             773.9917         2511.1787        121
P24            3177.9669         9534.5266        121
JUR               0.3388            0.4753        121
R1                0.1818            0.3873        121
R2                0.1488            0.3573        121
R3                0.2066            0.4066        121
R4                0.1570            0.3653        121
R5                0.0992            0.3001        121
R6                0.1818            0.3873        121
R7                0.0248            0.1561        121
```

# APPENDIX B

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                     08/25/80        PAGE   20
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                REGRESSION LIST  1
DEPENDENT VARIABLE..     C7

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P19

MULTIPLE R            0.50360          ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE              0.25361          REGRESSION               7.         2868.13047          409.73292         4.12589    0.0006
ADJUSTED R SQUARE     0.19214          RESIDUAL                85.         8441.16338           99.30780
STANDARD ERROR        9.96533

----------------- VARIABLES IN THE EQUATION ------------------            ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE              B              BETA       STD ERROR B      F          VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

JUR            -7.964470          -0.34142       2.78015       8.207        P1            0.03643      0.03474     0.67875       0.102
P12            -0.5257692E-02     -0.08289       0.00684       0.590        P2            0.00426      0.00379     0.59080       0.001
R5              7.019444           0.19002       3.77402       3.459        P3            0.03886      0.03924     0.76132       0.130
R3              4.812264           0.17646       2.82617       2.899        P5            0.01537      0.01719     0.93311       0.025
P4             -0.3485629E-03     -0.21049       0.00022       2.450        P6           -0.09360     -0.08385     0.59911       0.595
P15             0.3314129E-01      0.21417       0.02116       2.452        P7            0.04238      0.03765     0.58898       0.119
P19            -0.1411604E-01     -0.15152       0.01186       1.416        P8           -0.04307     -0.01064     0.04555       0.010
(CONSTANT)      100.7207                                                    P9           -0.02096     -0.01223     0.25424       0.013
                                                                            P10           0.01696      0.00983     0.25078       0.008
                                                                            P11           0.06924      0.06910     0.74329       0.403
                                                                            P13           0.03003      0.03185     0.83937       0.085
                                                                            P14           0.02324      0.02285     0.72149       0.044
                                                                            P16          -0.04426     -0.03704     0.52293       0.115
                                                                            P17           0.01062      0.00632     0.26409       0.003
                                                                            P18           0.07707      0.07065     0.62724       0.421
                                                                            P20          -0.01788     -0.00950     0.21080       0.008
                                                                            P21           0.06921      0.07619     0.90450       0.491
                                                                            P22           0.06604      0.07257     0.90121       0.445
                                                                            P23           0.06128      0.06723     0.89856       0.381
                                                                            P24           0.06641      0.07300     0.90201       0.450
                                                                            R1           -0.04346     -0.04241     0.71069       0.151
                                                                            R2            0.02555      0.02715     0.84264       0.062
                                                                            R4           -0.00829     -0.00896     0.87241       0.007
                                                                            R6           -0.01079     -0.01146     0.84212       0.011
                                                                            R7            0.07330      0.08100     0.91133       0.555
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE   43
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                   REGRESSION LIST   1
DEPENDENT VARIABLE..     C7

                                                   SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R            B                 BETA

JUR                                            0.40471    0.16379   0.16379    -0.40471       -8.776959             -0.37625
P12                                            0.42740    0.18267   0.01888    -0.14095       -0.3474427E-02        -0.05477
R5                                             0.45875    0.21046   0.02779     0.18119        7.567862              0.20487
R3                                             0.47278    0.22352   0.01307     0.13991        6.182041              0.22669
P4                                             0.48069    0.23106   0.00754     0.13425       -0.2052982E-03        -0.12398
P15                                            0.49110    0.24118   0.01012     0.23096        0.5137420E-01         0.33200
P19                                            0.50360    0.25361   0.01243    -0.15460       -0.4920895E-01        -0.52822
P6                                             0.50878    0.25886   0.00525    -0.05621       -0.4284105            -0.19590
P3                                             0.51500    0.26523   0.00637     0.01333       11.95792               0.18076
P18                                            0.52227    0.27276   0.00754     0.17921        0.8838882E-02         0.19173
P11                                            0.52876    0.27959   0.00682     0.08997        0.1250742E-01         0.18317
P20                                            0.53492    0.28614   0.00655     0.15565       -0.7724340E-02        -0.11483
P21                                            0.53943    0.29099   0.00485     0.08625        0.6659228E-02         2.72278
P24                                            0.54383    0.29575   0.00476     0.08072       -0.3254390E-02        -2.79863
R7                                             0.54689    0.29909   0.00334     0.02129       14.03823               0.19770
R4                                             0.54828    0.30061   0.00152    -0.05799        1.756059              0.05786
P14                                            0.54984    0.30232   0.00171    -0.13823        0.2819723E-01         0.10807
P5                                             0.55185    0.30454   0.00221     0.03046        0.1116523             0.05655
P8                                             0.55418    0.30712   0.00258    -0.21995       64.72611               0.33188
P13                                            0.55511    0.30815   0.00103    -0.07433        0.8979620E-04         0.03328
P16                                            0.55571    0.30881   0.00066     0.17926       -0.1677683E-01        -0.21295
P10                                            0.55807    0.31144   0.00263     0.13318        0.1144041E-01         0.33328
P1                                             0.56003    0.31363   0.00219     0.27204        0.3796987E-03         0.07355
R6                                             0.56115    0.31488   0.00125    -0.06077        1.003418              0.03505
P17                                            0.56210    0.31596   0.00107     0.12365       -0.8039573E-02        -0.23140
P2                                             0.56249    0.31640   0.00044    -0.27696       -2.077461             -0.06298
P9                                             0.56300    0.31697   0.00057     0.17639      -37.57091              -0.22356
P7                                             0.56319    0.31718   0.00021     0.05341        4.292712              0.03469
R1                                             0.56340    0.31742   0.00024    -0.15095       -0.7707456            -0.02692
(CONSTANT)                                                                                    56.57191
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                 08/25/80        PAGE   48
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  2

DEPENDENT VARIABLE..     C23

VARIABLE(S) ENTERED ON STEP NUMBER  5..     P5

MULTIPLE R             0.45373          ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE               0.20587          REGRESSION               5.           323.69492           64.73898        4.51074    0.0011
ADJUSTED R SQUARE      0.16023          RESIDUAL                87.          1248.63969           14.35218
STANDARD ERROR         3.78843

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B             BETA    STD ERROR B       F          VARIABLE        BETA IN      PARTIAL   TOLERANCE          F

JUR          -2.423225          -0.27859        0.88193       7.549      P1              0.09165      0.08371     0.66247      0.607
R1            2.947792           0.27616        1.07841       7.472      P2             -0.09878     -0.08405     0.57494      0.612
P14          -0.2561823E-01     -0.26334        0.01045       6.009      P3              0.03523      0.03809     0.92795      0.125
P7           -8.094066          -0.17542        4.72431       2.935      P4              0.02792      0.02550     0.66217      0.056
P5           -0.9082841E-01     -0.12338        0.07235       1.576      P6              0.08022      0.08257     0.84121      0.590
(CONSTANT)   46.05466                                                    P8             -0.01945     -0.01718     0.61914      0.025
                                                                         P9              0.10649      0.09475     0.62857      0.779
                                                                         P10            -0.06318     -0.05018     0.50090      0.217
                                                                         P11            -0.05396     -0.05490     0.82201      0.260
                                                                         P12             0.06517      0.07012     0.91920      0.425
                                                                         P13             0.02089      0.02212     0.89063      0.042
                                                                         P15             0.02963      0.02404     0.52291      0.050
                                                                         P16            -0.08210     -0.07011     0.57915      0.425
                                                                         P17            -0.00574     -0.00463     0.51620      0.002
                                                                         P18            -0.04756     -0.04093     0.58821      0.144
                                                                         P19             0.02495      0.02152     0.59105      0.040
                                                                         P20            -0.00003     -0.00003     0.62189      0.000
                                                                         P21             0.04147      0.04458     0.91776      0.171
                                                                         P22             0.03765      0.04051     0.91941      0.141
                                                                         P23             0.04283      0.04622     0.92489      0.184
                                                                         P24             0.04089      0.04401     0.91996      0.167
                                                                         R2             -0.08755     -0.09523     0.93959      0.787
                                                                         R3             -0.00393     -0.00425     0.93018      0.002
                                                                         R4              0.04771      0.05226     0.95288      0.236
                                                                         R5              0.02401      0.02625     0.94929      0.059
                                                                         R6              0.02141      0.02276     0.89756      0.045
                                                                         R7             -0.00007     -0.00007     0.95596      0.000
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=0=PUBLIC-=1=SEP                        08/25/80        PAGE   72
ELEMENTARY ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  2

DEPENDENT VARIABLE..    C23

                                                   SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                  BETA

JUR                                          0.26744    0.07152    0.07152   -0.26744    -0.8395161            -0.09652
R1                                           0.37089    0.13756    0.06604    0.18161     3.148387              0.29495
P14                                          0.41008    0.16817    0.03060   -0.19980    -0.2081098E-01        -0.21392
P7                                           0.43759    0.19148    0.02332   -0.12647    -4.799165             -0.10401
P5                                           0.45373    0.20587    0.01439   -0.05194    -0.1450086            -0.19698
R2                                           0.46160    0.21307    0.00720   -0.09948    -0.7820389E-01        -0.00676
P6                                           0.46897    0.21993    0.00686    0.16534     0.7268432E-01         0.08914
P1                                           0.47561    0.22620    0.00627    0.23951     0.3652748E-03         0.18976
P16                                          0.48840    0.23854    0.01234    0.04102     0.1373144E-02         0.04674
P9                                           0.50085    0.25085    0.01232    0.11005     52.14526              0.83217
P20                                          0.53173    0.28274    0.03189    0.04052    -0.1661220E-01        -0.66231
P17                                          0.54868    0.30105    0.01831    0.09745     0.1111699E-01         0.85814
P11                                          0.55934    0.31286    0.01181    0.06685    -0.3605560E-02        -0.14161
P12                                          0.56385    0.31793    0.00507    0.03857     0.3349000E-03         0.01416
P10                                          0.56752    0.32208    0.00415    0.07226    -0.8949498E-02        -0.69922
P2                                           0.57110    0.32616    0.00408   -0.23003    -2.690725             -0.21877
R7                                           0.57221    0.32743    0.00127    0.02710    -3.505909             -0.13242
P23                                          0.57853    0.33470    0.00727    0.11330     0.1103775E-01         6.70470
P22                                          0.59644    0.35574    0.02105    0.11452    -0.1949153E-01       -11.80619
P21                                          0.61360    0.37650    0.02076    0.12053     0.4834812E-02         5.30167
P15                                          0.61935    0.38360    0.00710    0.21875    -0.1606944E-01        -0.27851
P18                                          0.62464    0.39017    0.00658   -0.03311    -0.5298484E-02        -0.30824
P13                                          0.62635    0.39232    0.00214   -0.03639     0.9287127E-04         0.09232
P8                                           0.62723    0.39342    0.00110   -0.02001    -60.72577             -0.83508
P19                                          0.63545    0.40380    0.01038    0.05896     0.3175036E-01         0.91404
R5                                           0.63618    0.40473    0.00093    0.03408     0.5885477             0.04273
P4                                           0.63650    0.40513    0.00040    0.04215    -0.2878837E-04        -0.04662
R6                                           0.63667    0.40535    0.00022   -0.06511     0.1927362             0.01806
(CONSTANT)                                                                               52.96047
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE   81
ELEMENTARY ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *   M U L T I P L E   R E G R E S S I O N   * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                          REGRESSION LIST  3

DEPENDENT VARIABLE..     C39

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P12

MULTIPLE R           0.52625            ANALYSIS OF VARIANCE      DF        SUM OF SQUARES         MEAN SQUARE             F          P
R SQUARE             0.27694            REGRESSION                 9.            443.20491            49.24499         3.53217     0.0010
ADJUSTED R SQUARE    0.19853            RESIDUAL                  83.           1157.17352            13.94185
STANDARD ERROR       3.73388

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B             BETA     STD ERROR B        F          VARIABLE      BETA IN      PARTIAL   TOLERANCE          F

JUR           -1.836516         -0.20928        0.97544     3.545          P1            0.03167      0.02954     0.62886      0.072
R6            -1.803096         -0.16744        1.03818     3.016          P2           -0.08039     -0.06778     0.51402      0.378
P23           0.4953021E-02      2.98216        0.00147    11.407          P3           -0.01722     -0.01537     0.57605      0.019
P21          -0.2320220E-02     -2.52187        0.00074     9.822          P4            0.01475      0.01262     0.52939      0.013
R7            -10.52661         -0.39408        6.17357     2.907          P5           -0.02997     -0.03374     0.91671      0.093
P6            0.1332501          0.16198        0.09230     2.084          P7            0.10381      0.10218     0.70055      0.865
P8            -10.77314         -0.14684        8.68499     1.539          P9            0.09010      0.06561     0.38342      0.355
P11           0.3663185E-02      0.14261        0.00264     1.930          P10          -0.01697     -0.01358     0.46316      0.015
P12          -0.2838914E-02     -0.11897        0.00242     1.380          P13          -0.06878     -0.07621     0.88784      0.479
(CONSTANT)    22.92316                                                     P14          -0.02535     -0.02653     0.79175      0.058
                                                                           P15          -0.02715     -0.02388     0.55946      0.047
                                                                           P16          -0.00395     -0.00354     0.58106      0.001
                                                                           P17          -0.00230     -0.00176     0.42472      0.000
                                                                           P18           0.04763      0.04579     0.66807      0.172
                                                                           P19           0.32568      0.09302     0.05898      0.716
                                                                           P20           0.02231      0.01713     0.42616      0.024
                                                                           P22           2.63798      0.08646     0.00078      0.618
                                                                           P24          10.04451      0.08646     0.00005      0.618
                                                                           R1            0.01960      0.02046     0.78834      0.034
                                                                           R2           -0.02122     -0.02404     0.92756      0.047
                                                                           R3           -0.01434     -0.01540     0.83427      0.019
                                                                           R4            0.00255      0.00279     0.87059      0.001
                                                                           R5            0.01980      0.02158     0.85869      0.038
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80        PAGE   101
ELEMENTARY ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * * *     VARIABLE LIST   1
                                                                                                                           REGRESSION LIST   3
DEPENDENT VARIABLE..    C39

                                                   SUMMARY TABLE

VARIABLE                                   MULTIPLE R   R SQUARE   RSQ CHANGE   SIMPLE R        B                  BETA

JUR                                          0.33347     0.11120    0.11120    -0.33347     -0.8814939            -0.10045
R6                                           0.36542     0.13353    0.02233    -0.12716     -2.263378             -0.21018
P23                                          0.38971     0.15188    0.01834     0.19356      0.5200301E-02         3.13104
P21                                          0.44492     0.19795    0.04608     0.16851     -0.2460509E-02        -2.67436
R7                                           0.46783     0.21886    0.02091     0.09899     -11.92983             -0.44662
P6                                           0.48498     0.23521    0.01634     0.03095      0.8225689E-01         0.09999
P8                                           0.50437     0.25439    0.01919    -0.20699     -93.51898             -1.27472
P11                                          0.51470     0.26491    0.01052     0.18281      0.2308383E-02         0.08987
P12                                          0.52625     0.27694    0.01202    -0.09344     -0.3564573E-02        -0.14938
P7                                           0.53337     0.28449    0.00755     0.10556      11.19418              0.24047
P19                                          0.54656     0.29873    0.01424    -0.12980      0.5050495E-01         1.44116
P18                                          0.55576     0.30887    0.01015     0.17825     -0.3295292E-02        -0.19002
P13                                          0.55977     0.31334    0.00447    -0.18547     -0.1035506E-03        -0.10203
P9                                           0.56571     0.32003    0.00668     0.26905      2.797320              0.04425
P10                                          0.56836     0.32303    0.00300     0.13194     -0.4140132E-02        -0.32062
P2                                           0.57118     0.32624    0.00321    -0.20718     -2.186772             -0.17623
P1                                           0.57369     0.32913    0.00288     0.17242     -0.2114601E-03        -0.10889
R2                                           0.57539     0.33108    0.00195    -0.00032      0.1838948E-01         0.00158
P5                                           0.57706     0.33300    0.00192     0.00494     -0.4796730E-01        -0.06459
P14                                          0.57834     0.33448    0.00148    -0.16686     -0.5392584E-02        -0.05494
R3                                           0.57924     0.33551    0.00103     0.01488     -0.8864504            -0.08641
P15                                          0.58018     0.33661    0.00109     0.14935     -0.4892213E-02        -0.08404
R4                                           0.58128     0.33789    0.00128     0.06526     -0.7036623            -0.06164
P3                                           0.58180     0.33849    0.00060    -0.03537     -1.321085             -0.05309
P20                                          0.58247     0.33927    0.00078     0.21894      0.9334291E-02         0.36887
P4                                           0.58271     0.33955    0.00028     0.20773     -0.2650994E-04        -0.04256
R1                                           0.58287     0.33974    0.00019    -0.03970     -0.2553523            -0.02371
P16                                          0.58301     0.33990    0.00016     0.13146     -0.1192987E-02        -0.04025
(CONSTANT)                                                                                   31.70665
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE  110
ELEMENTARY ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  4
DEPENDENT VARIABLE..     C55

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P6

MULTIPLE R              0.56647          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES         MEAN SQUARE            F           P
R SQUARE                0.32088          REGRESSION                 9.          407.61201            45.29022        4.35753      0.0001
ADJUSTED R SQUARE       0.24725          RESIDUAL                  83.          862.66463            10.39355
STANDARD ERROR          3.22390

----------------- VARIABLES IN THE EQUATION ------------------              ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B            BETA      STD ERROR B          F        VARIABLE     BETA IN     PARTIAL    TOLERANCE           F

R4              5.579822         0.54860        1.27864       19.043        P3           0.07414     0.06981      0.60201       0.402
P2             -4.234650        -0.38306        1.79883        5.542        P4           0.02991     0.02908      0.64198       0.069
R1              3.501062         0.36491        1.28593        7.413        P5           0.04166     0.04890      0.93562       0.197
R2              3.011518         0.28960        1.30266        5.345        P8           0.01765     0.01621      0.57313       0.022
R3              2.024151         0.22147        1.22053        2.750        P9           0.00861     0.00871      0.69593       0.006
R6              1.421984         0.14821        1.24843        1.297        P10          0.07863     0.07078      0.55033       0.413
P1         -0.3234045E-03       -0.18692        0.00028        1.333        P11         -0.03885    -0.04296      0.83060       0.152
P7              6.341041         0.15290        4.03414        2.471        P12          0.00397     0.00431      0.80074       0.002
P6          0.9821726E-01        0.13401        0.07279        1.821        P13         -0.04971    -0.05624      0.86930       0.260
(CONSTANT)     12.58210                                                     P14          0.07440     0.08128      0.81048       0.545
                                                                            P15         -0.04840    -0.04029      0.47055       0.133
                                                                            P16          0.02827     0.02243      0.42764       0.041
                                                                            P17          0.07826     0.07162      0.56878       0.423
                                                                            P18          0.09279     0.08835      0.61574       0.645
                                                                            P19          0.03691     0.03166      0.49964       0.082
                                                                            P20          0.01912     0.01931      0.69278       0.031
                                                                            P21         -0.05154    -0.05716      0.83534       0.269
                                                                            P22         -0.04831    -0.05346      0.83178       0.235
                                                                            P23         -0.04340    -0.04784      0.82535       0.188
                                                                            P24         -0.04864    -0.05383      0.83181       0.238
                                                                            JUR         -0.06323    -0.05702      0.55233       0.267
                                                                            R5           0.13617     0.07594      0.21123       0.476
                                                                            R7          -0.07084    -0.07594      0.78046       0.476
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  130
ELEMENTARY ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST  4

DEPENDENT VARIABLE..    C55

                                                    SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                BETA

R4                                            0.37853    0.14329   0.14329    0.37853       5.462924             0.53711
P2                                            0.43658    0.19060   0.04732   -0.26775      -4.018327            -0.36349
R1                                            0.47177    0.22257   0.03197    0.08013       3.346477             0.34880
R2                                            0.49954    0.24954   0.02697    0.05530       2.168025             0.20849
R3                                            0.51721    0.26751   0.01796   -0.07366       1.422578             0.15565
R6                                            0.53032    0.28124   0.01373   -0.18461       1.028938             0.10725
P1                                            0.54083    0.29249   0.01126    0.14503     -0.4316936E-03        -0.24951
P7                                            0.55316    0.30599   0.01349    0.12852     -0.4059235            -0.00979
P6                                            0.56647    0.32088   0.01490    0.12341      0.5154185E-01         0.07032
P18                                           0.57113    0.32619   0.00530    0.14441      0.3988134E-02         0.25812
P3                                            0.57776    0.33381   0.00762    0.00703       3.693315             0.16659
P15                                           0.58187    0.33858   0.00477   -0.00340     -0.1072469E-01        -0.20680
JUR                                           0.58537    0.34266   0.00408   -0.13020     -0.2869740E-01        -0.00367
R7                                            0.58888    0.34678   0.00412   -0.21836      -4.383921            -0.18422
P17                                           0.59124    0.34957   0.00279    0.07771      0.7967615E-02         0.68426
P20                                           0.59653    0.35585   0.00628   -0.05438     -0.2587352E-01        -1.14766
P5                                            0.60208    0.36251   0.00666   -0.01987      0.5247578E-01         0.07931
P11                                           0.60522    0.36629   0.00379   -0.07927     -0.4388981E-02        -0.19178
P16                                           0.60974    0.37178   0.00549    0.14456     -0.5238702E-02        -0.19841
P13                                           0.61478    0.37796   0.00618   -0.07114     -0.9223806E-04        -0.10201
P9                                            0.61594    0.37938   0.00142   -0.08247      40.95781             0.72720
P12                                           0.61710    0.38081   0.00143   -0.03970     -0.1363250E-02        -0.06413
P23                                           0.61788    0.38177   0.00096   -0.18895      0.8093009E-03         0.54693
P21                                           0.62091    0.38553   0.00376   -0.19221     -0.3438883E-03        -0.41954
P10                                           0.62110    0.38576   0.00023    0.06717      0.5297932E-02         0.46051
P19                                           0.62160    0.38639   0.00063    0.04182     -0.2876463E-01        -0.92129
P8                                            0.62929    0.39601   0.00961    0.02117      51.41686             0.78665
P14                                           0.62957    0.39636   0.00036    0.00942     -0.2600122E-02        -0.02974
(CONSTANT)                                                                                 -4.199878
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                           08/25/80        PAGE  137
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  5

DEPENDENT VARIABLE..    C71

VARIABLE(S) ENTERED ON STEP NUMBER  7..    R3

                                                                                                                      F           P
MULTIPLE R            0.51474          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES          MEAN SQUARE
R SQUARE              0.26495         .REGRESSION                 7.         696.09691             99.44242       4.37701     0.0003
ADJUSTED R SQUARE     0.20442          RESIDUAL                  85.        1931.13678             22.71926
STANDARD ERROR        4.76647

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B              BETA       STD ERROR B        F            VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

P3             -11.52702          -0.36153        3.44227       11.214          P1          -0.02128     -0.01398     0.31714         0.016
P11            -0.6310268E-02     -0.19173        0.00327        3.733          P4          -0.05964     -0.05393     0.60112         0.245
P2             -5.546093          -0.34885        1.76663        9.856          P5          -0.03915     -0.04442     0.94647         0.166
P18            -0.6973864E-02     -0.31386        0.00258        7.280          P6           0.10021      0.09786     0.70094         0.812
R6              3.434393           0.24891        1.40209        6.000          P7          -0.03935     -0.03791     0.68189         0.121
R2              2.656893           0.17766        1.53972        2.978          P8          -0.03154     -0.03289     0.79931         0.091
R3              1.922178           0.14624        1.33967        2.059          P9          -0.02751     -0.02461     0.58797         0.051
(CONSTANT)     51.81983                                                         P10         -0.02040     -0.01596     0.44972         0.021
                                                                                P12          0.00548      0.00537     0.70479         0.002
                                                                                P13         -0.01198     -0.01323     0.89541         0.015
                                                                                P14         -0.07905     -0.08877     0.92675         0.667
                                                                                P15          0.03183      0.03076     0.68644         0.080
                                                                                P16         -0.03724     -0.02434     0.31408         0.050
                                                                                P17         -0.03517     -0.02625     0.40943         0.058
                                                                                P19         -0.00033     -0.00036     0.89033         0.000
                                                                                P20         -0.03166     -0.02529     0.46917         0.054
                                                                                P21         -0.07340     -0.08306     0.94114         0.584
                                                                                P22         -0.07499     -0.08498     0.94379         0.611
                                                                                P23         -0.07905     -0.08933     0.93871         0.676
                                                                                P24         -0.07539     -0.08532     0.94145         0.616
                                                                                JUR          0.04550      0.03925     0.54692         0.130
                                                                                R1           0.04492      0.04331     0.68339         0.158
                                                                                R4           0.07816      0.07813     0.73455         0.516
                                                                                R5          -0.07406     -0.07848     0.82538         0.521
                                                                                R7          -0.09976     -0.11153     0.91870         1.058
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80         PAGE  159
ELEMENTARY ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  5

DEPENDENT VARIABLE..     C71

                                                          SUMMARY TABLE

VARIABLE                                         MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA

P3                                                0.25912    0.06714   0.06714    -0.25912     -15.08889             -0.47324
P11                                               0.34287    0.11756   0.05042    -0.15373     -0.8301498E-02        -0.25223
P2                                                0.39127    0.15309   0.03553    -0.24784     -5.534871             -0.34814
P18                                               0.44625    0.19914   0.04605    -0.03156     -0.6524721E-02        -0.29364
R6                                                0.48050    0.23088   0.03174     0.13843      2.856644              0.20704
R2                                                0.49714    0.24715   0.01627     0.01834      3.028010              0.20248
R3                                                0.51474    0.26495   0.01780     0.05278      1.755140              0.13353
R7                                                0.52354    0.27410   0.00914    -0.20458     -8.223400             -0.24028
P14                                               0.53305    0.28415   0.01005    -0.14056     -0.2394730E-01        -0.19043
R5                                                0.53985    0.29143   0.00729    -0.11251     -1.644160             -0.09234
P7                                                0.54691    0.29911   0.00767     0.01383     -2.489379             -0.04174
P5                                                0.55210    0.30481   0.00571    -0.03358     -0.8327461E-01        -0.08751
JUR                                               0.55546    0.30853   0.00372    -0.10530      1.598193              0.14214
P8                                                0.55960    0.31315   0.00462    -0.08193    -91.93686              -0.97806
P19                                               0.56921    0.32400   0.01085    -0.08528      0.4714030E-01         1.04986
P13                                               0.57158    0.32670   0.00270    -0.05473     -0.1167106E-03        -0.08975
P20                                               0.57429    0.32981   0.00311    -0.08229      0.2440812E-01         0.75282
P17                                               0.57834    0.33447   0.00466    -0.06908     -0.5074728E-02        -0.30304
P6                                                0.58062    0.33712   0.00265    -0.10925      0.8327326E-01         0.07901
P9                                                0.58275    0.33960   0.00248    -0.06477    -27.17102              -0.33545
P10                                               0.58425    0.34135   0.00175    -0.07419     -0.4780031E-02        -0.28891
P12                                               0.58527    0.34254   0.00119    -0.00779      0.1887818E-02         0.06175
P4                                                0.58604    0.34344   0.00090    -0.06267     -0.7027397E-04        -0.08805
P15                                               0.58642    0.34389   0.00045    -0.02704      0.7519313E-02         0.10082
P1                                                0.58655    0.34404   0.00016     0.15846     -0.2762868E-03        -0.11104
P22                                               0.58666    0.34418   0.00013    -0.16527      0.9030274E-02         4.23144
P21                                               0.58815    0.34592   0.00174    -0.16703     -0.2748445E-02        -2.33154
P23                                               0.59258    0.35115   0.00523    -0.17230     -0.3918078E-02        -1.84118
(CONSTANT)                                                                                    74.77667
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                         08/25/80         PAGE  169
ELEMENTARY ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                        REGRESSION LIST  6
DEPENDENT VARIABLE..    C87

VARIABLE(S) ENTERED ON STEP NUMBER 10..     P14


MULTIPLE R            0.59145           ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE           F          P
R SQUARE              0.34981           REGRESSION              10.           326.79493           32.67949       4.41177    0.0001
ADJUSTED R SQUARE     0.27052           RESIDUAL                82.           607.40258            7.40735
STANDARD ERROR        2.72164

----------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B              BETA      STD ERROR B       F          VARIABLE       BETA IN      PARTIAL     TOLERANCE          F

P8              -24.25049         -0.43264        7.94423     9.318         P3            -0.09477     -0.08657     0.54248        0.612
P1              0.7139618E-04      0.04812        0.00024     0.089         P4             0.10554      0.05854     0.20004        0.279
P20            -0.1422616E-01     -0.73583        0.00622     5.237         P10           -0.06845     -0.02231     0.06906        0.040
P5              0.1326276          0.23373        0.05472     5.875         P11           -0.03371     -0.03247     0.60336        0.086
P2             -2.683037          -0.28301        1.59352     2.835         P13            0.07780      0.08855     0.84236        0.640
P6              0.1410205          0.22437        0.06662     4.480         P15           -0.07731     -0.06091     0.40359        0.302
P7               5.044009          0.14182        3.84776     1.718         P16           -0.01438     -0.00612     0.11768        0.003
P12             0.2305647E-02      0.12647        0.00184     1.568         P17            0.09550      0.04078     0.11857        0.135
P9               22.59377          0.46778       15.18886     2.213         P18           -0.05169     -0.03544     0.30560        0.102
P14             0.1027475E-01      0.13702        0.00846     1.477         P19           -0.12629     -0.03258     0.04327        0.086
(CONSTANT)       14.19097                                                   P21            0.07791      0.08392     0.75441        0.574
                                                                            P22            0.08140      0.08776     0.75575        0.629
                                                                            P23            0.08534      0.09184     0.75315        0.689
                                                                            P24            0.08092      0.08715     0.75419        0.620
                                                                            JUR            0.05209      0.04274     0.43759        0.148
                                                                            R1            -0.06822     -0.07323     0.74929        0.437
                                                                            R2            -0.02983     -0.03559     0.92535        0.103
                                                                            R3             0.03919      0.04444     0.83603        0.160
                                                                            R4             0.01702      0.02023     0.91934        0.033
                                                                            R5            -0.06170     -0.07086     0.85760        0.409
                                                                            R6             0.05912      0.06914     0.88946        0.389
                                                                            R7             0.04823      0.05402     0.81554        0.237
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE  186
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                          REGRESSION LIST  6
DEPENDENT VARIABLE..     C87

                                                         SUMMARY TABLE

VARIABLE                                       MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                 BETA

P8                                              0.38710    0.14985   0.14985    -0.38710    -27.78802              -0.49575
P1                                              0.43666    0.19067   0.04082     0.31913     0.1795780E-03          0.12103
P20                                             0.47812    0.22860   0.03793     0.03452    -0.1347379E-01         -0.69691
P5                                              0.51415    0.26435   0.03575     0.20234     0.1262686              0.22253
P2                                              0.53402    0.28518   0.02083    -0.30782    -3.212945              -0.33891
P6                                              0.54941    0.30185   0.01667    -0.05233     0.1971123              0.31361
P7                                              0.56299    0.31696   0.01511     0.31467     5.085321               0.14298
P12                                             0.57249    0.32774   0.01078    -0.08102     0.1235168E-02          0.06775
P9                                              0.58147    0.33810   0.01036     0.13992    19.51352                0.40400
P14                                             0.59145    0.34981   0.01171    -0.21982     0.9579235E-02          0.12775
P23                                             0.59607    0.35530   0.00548     0.03105     0.2825495E-02          2.22662
P13                                             0.60160    0.36192   0.00662    -0.08997     0.9529834E-04          0.12290
P3                                              0.60631    0.36762   0.00570    -0.05508    -1.753745              -0.09224
P15                                             0.61148    0.37391   0.00629    -0.10445    -0.8452502E-02         -0.19006
P22                                             0.61526    0.37854   0.00463     0.03357    -0.3107922E-02         -2.44223
R6                                              0.61873    0.38283   0.00429     0.12238     0.9108029              0.11070
P18                                             0.62280    0.38788   0.00505     0.14459    -0.2101352E-02         -0.15859
R3                                              0.62620    0.39213   0.00425     0.04360     0.6648853              0.08483
P17                                             0.62989    0.39677   0.00463    -0.09187     0.5360008E-02          0.53677
R7                                              0.63188    0.39927   0.00250    -0.03181    -2.584850              -0.12666
P11                                             0.63313    0.40085   0.00158    -0.10487    -0.1369162E-02         -0.06976
P10                                             0.63451    0.40261   0.00175    -0.12648    -0.2916708E-02         -0.29564
JUR                                             0.63541    0.40375   0.00115    -0.19667     0.3945117              0.05884
R4                                              0.63605    0.40456   0.00081     0.09147     0.3295760              0.03779
P21                                             0.63627    0.40483   0.00027     0.02804     0.3267830E-03          0.46489
R1                                              0.63635    0.40494   0.00010    -0.14401     0.1203838              0.01463
(CONSTANT)                                                                                  18.37204
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                                08/25/80        PAGE  195
ELEMENTARY ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *   M U L T I P L E    R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  7
DEPENDENT VARIABLE..     C103

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P15

MULTIPLE R             0.58224          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES       MEAN SQUARE            F          P
R SQUARE               0.33901          REGRESSION                9.         1233.78148          137.08683        4.72989    0.0000
ADJUSTED R SQUARE      0.26734          RESIDUAL                 83.         2405.59745           28.98310
STANDARD ERROR         5.38360

------------------ VARIABLES IN THE EQUATION ------------------        -------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE            B            BETA      STD ERROR B        F         VARIABLE      BETA IN     PARTIAL   TOLERANCE          F

P8           -32.93336       -0.29768      48.28471         0.465       P1          -0.05614    -0.06045    0.76662        0.301
R2             1.578143       0.08966       1.69453         0.867       P2           0.03947     0.03981    0.67227        0.130
P6            -0.6190286     -0.49899       0.16897        13.421       P5          -0.04581    -0.04980    0.78117        0.204
P3            16.21509        0.43209       4.51282        12.911       P7           0.00475     0.00434    0.55326        0.002
P11            0.8032950E-02  0.20738       0.00454         3.137       P10          0.00246     0.00123    0.16557        0.000
P9           -36.03350       -0.37797      18.38386         3.842       P12          0.01042     0.01108    0.74703        0.010
P19            0.3916858E-01  0.74116       0.02355         2.765       P13         -0.04424    -0.04731    0.75613        0.184
P4             0.2220455E-03  0.23638       0.00016         1.872       P14          0.04395     0.04766    0.77725        0.187
P15           -0.1478710E-01 -0.16846       0.01301         1.292       P16         -0.12250    -0.10268    0.46440        0.874
(CONSTANT)   -12.71495                                                  P17          0.00397     0.00194    0.15753        0.000
                                                                        P18          0.05956     0.05103    0.48524        0.214
                                                                        P20         -0.23980    -0.07928    0.07225        0.519
                                                                        P21          0.08595     0.09816    0.86209        0.798
                                                                        P22          0.08799     0.10052    0.86268        0.837
                                                                        P23          0.09648     0.10999    0.85908        1.004
                                                                        P24          0.08938     0.10204    0.86140        0.863
                                                                        JUR         -0.08042    -0.07416    0.56216        0.454
                                                                        R1           0.05755     0.05846    0.68198        0.281
                                                                        R3          -0.00324    -0.00368    0.85206        0.001
                                                                        R4           0.02815     0.03293    0.90436        0.089
                                                                        R5          -0.06783    -0.07702    0.85225        0.489
                                                                        R6          -0.05234    -0.06166    0.91717        0.313
                                                                        R7           0.08783     0.10237    0.89806        0.869
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE  215
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  7
DEPENDENT VARIABLE..    C103

                                                          SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                      BETA

P8                                           0.33609    0.11295    0.11295     0.33609      63.81792                   0.57684
R2                                           0.39653    0.15723    0.04428     0.24187     -0.9425296                 -0.05355
P6                                           0.44588    0.19881    0.04158    -0.02662     -0.6380305                 -0.51431
P3                                           0.51739    0.26769    0.06888     0.22912      18.33768                   0.48866
P11                                          0.53764    0.28906    0.02137    -0.00418      0.6129765E-02             0.15824
P9                                           0.54800    0.30030    0.01124    -0.28836      78.25652                   0.82087
P19                                          0.56325    0.31725    0.01695     0.29697     -0.2800236E-01            -0.52987
P4                                           0.57334    0.32872    0.01147    -0.21658      0.1935098E-03             0.20600
P15                                          0.58224    0.33901    0.01029    -0.16653     -0.2647389E-01            -0.30159
P23                                          0.58907    0.34701    0.00800     0.02158      0.2960677E-02             1.18209
P22                                          0.59640    0.35569    0.00869     0.01747     -0.5074668E-02            -2.02037
JUR                                          0.60017    0.36020    0.00451     0.17422     -1.079628                 -0.08158
P14                                          0.60593    0.36715    0.00695     0.16370      0.1097368E-01             0.07414
P16                                          0.61080    0.37308    0.00594    -0.24411     -0.7786654E-02            -0.17423
P10                                          0.61515    0.37840    0.00532    -0.08600      0.2495298E-01             1.28143
P20                                          0.63116    0.39836    0.01995    -0.26509     -0.7429490E-01            -1.94694
P18                                          0.63722    0.40605    0.00769    -0.16726      0.6619305E-02             0.25311
R5                                           0.64009    0.40971    0.00366    -0.14675     -2.966991                 -0.14159
P5                                           0.64236    0.41262    0.00291    -0.09874     -0.8874417E-01            -0.07924
R1                                           0.64471    0.41565    0.00303     0.12598     -0.3455596                -0.02128
P1                                           0.64813    0.42007    0.00443    -0.19159     -0.3459713E-03            -0.11814
P7                                           0.65132    0.42421    0.00414    -0.13943     -9.011749                 -0.12838
R6                                           0.65241    0.42564    0.00142    -0.14082     -2.403015                 -0.14797
P21                                          0.65284    0.42619    0.00055     0.01631      0.1261171E-02             0.90900
P12                                          0.65312    0.42657    0.00038    -0.02259     -0.1242497E-02            -0.03453
R3                                           0.65358    0.42716    0.00059    -0.03073     -1.989635                 -0.12861
P13                                          0.65384    0.42751    0.00034     0.06605      0.4181960E-04             0.02732
R4                                           0.65399    0.42770    0.00019    -0.08524     -1.481757                 -0.08607
(CONSTANT)                                                                                -44.05307
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                           08/25/80        PAGE  220
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * * *  VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  8
DEPENDENT VARIABLE..   C151

VARIABLE(S) ENTERED ON STEP NUMBER  5..     P16

MULTIPLE R            0.69151           ANALYSIS OF VARIANCE     DF       SUM OF SQUARES       MEAN SQUARE             F           P
R SQUARE              0.47819           REGRESSION                5.          5565.94462        1113.18892        15.94541     0.0000
ADJUSTED R SQUARE     0.44820           RESIDUAL                 87.          6073.68825          69.81251
STANDARD ERROR        8.35539

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B           BETA     STD ERROR B        F          VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

JUR           9.071596         0.38332       2.57972     12.366          P1          -0.06748     -0.06783     0.52715        0.397
P9          -39.50617         -0.23172      16.62476      5.647          P2           0.06070      0.04801     0.32646        0.199
P14     0.6653326E-01          0.25136       0.02351      8.010          P3           0.05713      0.07320     0.85677        0.463
R1           -4.722821        -0.16262       2.42713      3.786          P4           0.16147      0.11125     0.24768        1.078
P16    -0.1367182E-01         -0.17106       0.00826      2.739          P5          -0.09034     -0.11686     0.87316        1.191
(CONSTANT)    8.916520                                                   P6          -0.04147     -0.05438     0.89729        0.255
                                                                         P7          -0.00096     -0.00123     0.86971        0.000
                                                                         P8          -0.03854     -0.03923     0.54053        0.133
                                                                         P10         -0.04662     -0.03608     0.31245        0.112
                                                                         P11          0.02595      0.03134     0.76113        0.085
                                                                         P12          0.06418      0.08382     0.89004        0.608
                                                                         P13          0.08313      0.11122     0.93401        1.077
                                                                         P15         -0.06908     -0.07556     0.62414        0.494
                                                                         P17          0.02557      0.01984     0.31411        0.034
                                                                         P18         -0.05612     -0.05392     0.48172        0.251
                                                                         P19         -0.05004     -0.05622     0.65857        0.273
                                                                         P20          0.16057      0.04934     0.04926        0.210
                                                                         P21         -0.02298     -0.02838     0.79598        0.069
                                                                         P22         -0.02267     -0.02797     0.79447        0.067
                                                                         P23         -0.02916     -0.03587     0.78938        0.111
                                                                         P24         -0.02457     -0.03029     0.79331        0.079
                                                                         R2           0.08365      0.10913     0.88811        1.036
                                                                         R3          -0.06583     -0.08762     0.92446        0.665
                                                                         R4          -0.06412     -0.08658     0.95138        0.650
                                                                         R5           0.07070      0.09326     0.90796        0.755
                                                                         R6          -0.00539     -0.00720     0.93248        0.004
                                                                         R7           0.02369      0.03032     0.85531        0.079
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE  244
ELEMENTARY ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  8

DEPENDENT VARIABLE..     C151

                                                          SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                    BETA

JUR                                          0.62075    0.38532    0.38532    0.62075      3.534362                 0.14934
P9                                           0.64249    0.41280    0.02747   -0.46725     -125.0380                -0.73340
P14                                          0.66190    0.43811    0.02532    0.28885     0.7023288E-01             0.26534
R1                                           0.67953    0.46176    0.02365    0.07702     -1.088495                -0.03748
P16                                          0.69151    0.47819    0.01643   -0.42029    -0.1465841E-01            -0.18340
P5                                           0.69665    0.48532    0.00713   -0.14567    -0.4159502E-01            -0.02077
P13                                          0.70237    0.49332    0.00800    0.17393     0.3773461E-03             0.13786
P15                                          0.70769    0.50083    0.00751   -0.36448    -0.1878691E-01            -0.11967
R5                                           0.71169    0.50651    0.00568   -0.05343      3.735313                 0.09967
P1                                           0.71652    0.51340    0.00689   -0.44894    -0.7243585E-03            -0.13831
P18                                          0.71923    0.51730    0.00390   -0.37424    -0.3692225E-02            -0.07895
P11                                          0.72138    0.52039    0.00309   -0.20548     0.6160667E-02             0.08893
P8                                           0.72463    0.52509    0.00470    0.34100     -38.07329                -0.19243
R7                                           0.72667    0.52805    0.00296   -0.04614      23.13281                 0.32112
P23                                          0.73471    0.53980    0.01175   -0.17973    -0.8067160E-02            -1.80104
P22                                          0.73732    0.54364    0.00385   -0.18152     0.9672047E-02             2.15320
P4                                           0.73983    0.54735    0.00370   -0.34950     0.2995245E-03             0.17829
R6                                           0.74132    0.54956    0.00221   -0.01876      1.265026                 0.04356
P3                                           0.74302    0.55208    0.00252    0.20365      7.196380                 0.10723
P12                                          0.74520    0.55532    0.00324    0.04661     0.4515846E-02             0.07017
P10                                          0.74735    0.55853    0.00321   -0.33210    -0.2531673E-01            -0.72698
P17                                          0.74856    0.56034    0.00181   -0.30273     0.1205502E-01             0.34201
P20                                          0.74971    0.56206    0.00172   -0.42974     0.3847797E-01             0.56383
R2                                           0.75042    0.56312    0.00106    0.12542      1.172910                 0.03726
P21                                          0.75088    0.56382    0.00070   -0.18038    -0.1669203E-02            -0.67274
P2                                           0.75132    0.56449    0.00067    0.47155     -2.812843                -0.08406
P6                                           0.75183    0.56524    0.00075    0.03076    -0.1026167                -0.04625
P19                                          0.75229    0.56594    0.00069    0.20943     0.2081364E-01             0.22023
(CONSTANT)                                                                                 27.47974
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE  256
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                     REGRESSION LIST  1

DEPENDENT VARIABLE..     C11

VARIABLE(S) ENTERED ON STEP NUMBER  5..     P13

MULTIPLE R             0.37190          ANALYSIS OF VARIANCE    DF      SUM OF SQUARES       MEAN SQUARE            F           P
R SQUARE               0.13831          REGRESSION               5.          645.51671         129.10334        2.79294     0.0218
ADJUSTED R SQUARE      0.08879          RESIDUAL                87.         4021.56290          46.22486
STANDARD ERROR         6.79889

----------------- VARIABLES IN THE EQUATION ------------------            ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE            B              BETA      STD ERROR B          F       VARIABLE      BETA IN      PARTIAL   TOLERANCE          F

PB           -16.32168         -0.13028       14.29760        1.303       P1           -0.09481     -0.08372     0.67202       0.607
P3             8.901507         0.20947        4.33768        4.211       P2            0.08382      0.06710     0.55222       0.389
R6             3.168706         0.17231        1.86753        2.879       P4            0.00540      0.00445     0.58444       0.002
JUR           -2.143326        -0.14303        1.67497        1.637       P5           -0.00617     -0.00648     0.95114       0.004
P13          -0.2013083E-03    -0.11615        0.00018        1.252       P6           -0.10425     -0.08787     0.61206       0.669
(CONSTANT)    28.22842                                                    P7            0.02719      0.02642     0.81388       0.060
                                                                          P9           -0.04134     -0.03164     0.50468       0.086
                                                                          P10          -0.02793     -0.02503     0.69163       0.054
                                                                          P11           0.04271      0.04368     0.90129       0.164
                                                                          P12          -0.04449     -0.04284     0.79879       0.158
                                                                          P14          -0.04512     -0.04512     0.86163       0.175
                                                                          P15           0.03337      0.03004     0.69805       0.078
                                                                          P16          -0.11876     -0.10058     0.61805       0.879
                                                                          P17          -0.03200     -0.02859     0.68772       0.070
                                                                          P18          -0.09110     -0.07911     0.64969       0.542
                                                                          P19          -0.13379     -0.04254     0.08710       0.156
                                                                          P20          -0.06168     -0.05078     0.58392       0.222
                                                                          P21          -0.05557     -0.05874     0.96264       0.298
                                                                          P22          -0.05191     -0.05485     0.96209       0.259
                                                                          P23          -0.05313     -0.05628     0.96666       0.273
                                                                          P24          -0.05404     -0.05715     0.96371       0.282
                                                                          R1            0.02950      0.02819     0.78719       0.068
                                                                          R2           -0.03882     -0.03826     0.83710       0.126
                                                                          R3           -0.02483     -0.02573     0.92521       0.057
                                                                          R4            0.02818      0.02846     0.87896       0.070
                                                                          R5            0.03531      0.03647     0.91935       0.115
                                                                          R7           -0.04579     -0.04906     0.98914       0.208
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                       08/25/80        PAGE  281
JUNIOR HIGH ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  1
DEPENDENT VARIABLE..     C11

                                                          SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                 BETA

P8                                           0.22592    0.05104   0.05104    -0.22592       100.4359            0.80166
P3                                           0.28235    0.07972   0.02868     0.13796       15.26031            0.35910
R6                                           0.32727    0.10711   0.02739     0.19026       3.150069            0.17129
JUR                                          0.35484    0.12591   0.01880    -0.19027      -1.004726           -0.06705
P13                                          0.37190    0.13831   0.01240    -0.17208     -0.2747049E-03       -0.15850
P16                                          0.38345    0.14703   0.00872    -0.02920     -0.1194095E-01       -0.23594
P21                                          0.39086    0.15277   0.00574    -0.01999     -0.9215395E-02       -5.86539
P15                                          0.39917    0.15933   0.00656     0.02766      0.2530550E-01        0.25457
P6                                           0.41227    0.16996   0.01063    -0.07811     -0.3481294           -0.24781
P7                                           0.41795    0.17468   0.00471     0.10461       8.316883            0.10462
P11                                          0.42666    0.18204   0.00736     0.03298      0.3861561E-02        0.08803
P18                                          0.43169    0.18635   0.00431    -0.01108      0.2718079E-02        0.09178
P10                                          0.43846    0.19225   0.00590    -0.04379      0.3627686E-01        1.64510
P20                                          0.44540    0.19839   0.00614     0.04957     -0.8714197E-01       -2.01656
P4                                           0.45256    0.20481   0.00643     0.07610      0.1167526E-03        0.10975
P17                                          0.45629    0.20820   0.00339    -0.04786     -0.6491224E-02       -0.29083
P9                                           0.45951    0.21115   0.00295     0.10889       125.0927            1.15872
P19                                          0.46654    0.21766   0.00651    -0.21776     -0.7242492E-01       -1.21019
P1                                           0.47001    0.22091   0.00325     0.01677     -0.1318043E-02       -0.39743
R2                                           0.47458    0.22523   0.00432    -0.05798      -2.842199           -0.14259
P22                                          0.47693    0.22747   0.00224    -0.01682      0.3256289E-01       11.44819
P23                                          0.52470    0.27531   0.04784    -0.01926     -0.1582870E-01       -5.58077
R7                                           0.52777    0.27854   0.00323    -0.05125      -8.075986           -0.17705
R3                                           0.53049    0.28142   0.00288    -0.02951      -1.343366           -0.07668
P14                                          0.53275    0.28382   0.00240    -0.12961     -0.1433287E-01       -0.08552
R5                                           0.53345    0.28457   0.00074     0.02079     -0.7786380           -0.03281
P5                                           0.53382    0.28496   0.00039     0.02914     -0.3372192E-01       -0.02659
P12                                          0.53409    0.28525   0.00029    -0.12159     -0.9589963E-03       -0.02353
P2                                           0.53423    0.28540   0.00016    -0.01890     -0.6753858           -0.03187
(CONSTANT)                                                                                -35.15134
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  284
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                           REGRESSION LIST  2
DEPENDENT VARIABLE..    C27

VARIABLE(S) ENTERED ON STEP NUMBER  3..    P14

MULTIPLE R           0.26606          ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE             0.07079          REGRESSION               3.            82.95457           27.65152         2.26004    0.0869
ADJUSTED R SQUARE    0.03947          RESIDUAL                89.          1088.91222           12.23497
STANDARD ERROR       3.49785

----------------- VARIABLES IN THE EQUATION ------------------         ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B           BETA    STD ERROR B       F          VARIABLE       BETA IN      PARTIAL   TOLERANCE          F

JUR           -1.086633       -0.14471        0.79458    1.870          P1          -0.08253     -0.07189     0.70521       0.457
R4             1.296476        0.13271        1.00290    1.671          P2           0.01922      0.01544     0.59987       0.021
P14       -0.1096539E-01      -0.13056        0.00890    1.519          P3           0.08120      0.07939     0.88815       0.558
(CONSTANT)    20.74087                                                  P4           0.04001      0.03552     0.73204       0.111
                                                                        P5          -0.08544     -0.08661     0.95492       0.665
                                                                        P6          -0.03424     -0.03508     0.97549       0.108
                                                                        P7          -0.07105     -0.06976     0.89586       0.430
                                                                        P8          -0.08448     -0.07737     0.77926       0.530
                                                                        P9           0.05698      0.04981     0.71005       0.219
                                                                        P10         -0.06294     -0.04998     0.58594       0.220
                                                                        P11         -0.02926     -0.02912     0.92025       0.075
                                                                        P12         -0.01045     -0.01038     0.91754       0.009
                                                                        P13         -0.06398     -0.06509     0.96178       0.374
                                                                        P15          0.08264      0.07353     0.73576       0.478
                                                                        P16         -0.05327     -0.04250     0.59148       0.159
                                                                        P17         -0.04966     -0.03933     0.58272       0.136
                                                                        P18         -0.09227     -0.08389     0.76803       0.624
                                                                        P19         -0.07800     -0.07414     0.83963       0.486
                                                                        P20          0.02917      0.02474     0.66868       0.054
                                                                        P21          0.04913      0.04915     0.92982       0.213
                                                                        P22          0.04731      0.04732     0.92936       0.197
                                                                        P23          0.05049      0.05065     0.93499       0.226
                                                                        P24          0.04910      0.04914     0.93091       0.213
                                                                        R1          -0.01075     -0.01049     0.88595       0.010
                                                                        R2           0.04624      0.04695     0.95795       0.194
                                                                        R3          -0.05017     -0.05073     0.94993       0.227
                                                                        R5           0.09375      0.09541     0.96236       0.808
                                                                        R6          -0.06586     -0.06659     0.95013       0.392
                                                                        R7           0.02905      0.02965     0.96802       0.077
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80     PAGE  310
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  2

DEPENDENT VARIABLE..    C27

                                                     SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                         BETA

JUR                                         0.18721    0.03505    0.03505    -0.18721    -0.1224836                  -0.01631
R4                                          0.23437    0.05493    0.01988     0.15358     1.873946                    0.19183
P14                                         0.26606    0.07079    0.01586    -0.17858    -0.1153190E-01              -0.13731
R5                                          0.28151    0.07925    0.00846     0.09139     1.487986                    0.12513
P18                                         0.29802    0.08882    0.00957    -0.01642    -0.1656508E-03              -0.01116
P8                                          0.31219    0.09746    0.00864    -0.18109    -17.14568                   -0.27311
P5                                          0.32361    0.10472    0.00726    -0.06263    -0.6555057E-01              -0.10314
P15                                         0.33723    0.11373    0.00900     0.10240     0.1108554E-01               0.22255
P10                                         0.34763    0.12085    0.00712    -0.02959    -0.9903580E-02              -0.89627
R2                                          0.36127    0.13052    0.00967     0.03174     1.722837                    0.17249
P20                                         0.37273    0.13892    0.00841     0.07025     0.9035471E-02               0.41727
P13                                         0.38214    0.14603    0.00711    -0.09998    -0.9415217E-04              -0.10841
P7                                          0.38641    0.14932    0.00329    -0.00557    -4.733432                   -0.11883
R1                                          0.38846    0.15090    0.00159    -0.09886     0.7493899                   0.08132
P11                                         0.39083    0.15275    0.00184    -0.01391    -0.1593402E-02              -0.07249
P17                                         0.39453    0.15565    0.00291    -0.02219     0.4665332E-02               0.41714
P4                                          0.39622    0.15699    0.00134     0.09202    -0.5507585E-04              -0.10332
P1                                          0.39737    0.15791    0.00091     0.05714    -0.2045417E-03              -0.12308
P2                                          0.40022    0.16018    0.00227    -0.11675    -1.855847                   -0.17478
P19                                         0.40268    0.16215    0.00198    -0.16544     0.9767136E-02               0.32570
P6                                          0.40451    0.16363    0.00147    -0.06928    -0.7875627E-01              -0.11188
P3                                          0.40854    0.16690    0.00328     0.02610     1.894306                    0.08896
R3                                          0.40951    0.16770    0.00079    -0.07303     0.3201572                   0.03647
P23                                         0.40995    0.16806    0.00036     0.09099     0.1867218E-02               1.31379
R7                                          0.41289    0.17048    0.00242     0.03949    -2.618769                   -0.11457
P22                                         0.41445    0.17177    0.00129     0.08844    -0.2887156E-02              -2.02566
P21                                         0.41539    0.17255    0.00078     0.08870     0.6663072E-03               0.84633
P12                                         0.41565    0.17276    0.00021    -0.02830    -0.4052010E-03              -0.01984
(CONSTANT)                                                                               33.18277
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=0=PUBLIC-=1=SEP                              08/25/80       PAGE 319
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  3
DEPENDENT VARIABLE..     C43

VARIABLE(S) ENTERED ON STEP NUMBER  9..     JUR

MULTIPLE R             0.64265          ANALYSIS OF VARIANCE    DF      SUM OF SQUARES       MEAN SQUARE          F         P
R SQUARE               0.41300          REGRESSION               9.       1294.53630         143.83737       6.48854   0.0000
ADJUSTED R SQUARE      0.34935          RESIDUAL                83.       1839.93602          22.16790
STANDARD ERROR         4.70828

----------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE            B              BETA     STD ERROR B       F       VARIABLE       BETA IN     PARTIAL    TOLERANCE         F

P2             4.932929         0.28407       1.96751     6.286       P1             0.10588     0.07555     0.29880      0.471
R3            -3.565957        -0.24838       1.30429     7.475       P4             0.08867     0.06056     0.27387      0.302
P15          -0.9799876E-02    -0.12030       0.00860     1.297       P5             0.10044     0.12644     0.93018      1.332
P3             5.720456         0.16426       3.23551     3.126       P6            -0.13875    -0.12995     0.51491      1.408
P13          -0.4258694E-03    -0.29983       0.00014     9.606       P7            -0.00780    -0.00804     0.62243      0.005
R2             3.548929         0.21726       1.61969     4.801       P8            -0.04859    -0.04368     0.47423      0.157
R7            -6.934203        -0.18549       3.37863     4.212       P10           -0.11286    -0.08003     0.29512      0.529
P9            24.97331          0.28227       9.58539     6.788       P11           -0.00774    -0.00795     0.61896      0.005
JUR            3.568495         0.29057       1.62559     4.819       P12           -0.03657    -0.04013     0.70710      0.132
(CONSTANT)    14.89771                                                P14           -0.05034    -0.05728     0.76012      0.270
                                                                      P16           -0.16468    -0.12040     0.31381      1.206
                                                                      P17           -0.07416    -0.05391     0.31012      0.239
                                                                      P18           -0.06976    -0.06767     0.55233      0.377
                                                                      P19           -0.05408    -0.05014     0.50449      0.207
                                                                      P20           -0.32781    -0.12432     0.08443      1.287
                                                                      P21            0.04432     0.02581     0.19912      0.055
                                                                      P22            0.05802     0.03201     0.17868      0.084
                                                                      P23            0.03371     0.01775     0.16276      0.026
                                                                      P24            0.04587     0.02557     0.18232      0.054
                                                                      R1             0.06531     0.07019     0.67792      0.406
                                                                      R4            -0.03217    -0.03827     0.83057      0.120
                                                                      R5             0.03194     0.03860     0.85726      0.122
                                                                      R6            -0.05339    -0.06131     0.77396      0.309
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE  341
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  3
DEPENDENT VARIABLE..    C43

                                                          SUMMARY TABLE

VARIABLE                                     MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                 BETA

P2                                             0.39791   0.15833   0.15833     0.39791      4.393831              0.25302
R3                                             0.45324   0.20542   0.04709    -0.20694     -3.525170             -0.24554
P15                                            0.51349   0.26367   0.05825    -0.31722      0.4961477E-02         0.06090
P3                                             0.54073   0.29239   0.02872     0.26807      9.113535              0.26168
P13                                            0.56579   0.32012   0.02773    -0.13971     -0.5691577E-03        -0.40071
R2                                             0.58245   0.33924   0.01913     0.20375      3.785141              0.23172
R7                                             0.59563   0.35477   0.01553    -0.07627    -10.20078              -0.27287
P9                                             0.61556   0.37892   0.02414    -0.12829     73.73419               0.83340
JUR                                            0.64265   0.41300   0.03408     0.35200      4.718753              0.38423
P6                                             0.65032   0.42291   0.00991    -0.08019     -0.1793637            -0.15579
P16                                            0.65719   0.43189   0.00898    -0.35926     -0.1156730E-01        -0.27889
P4                                             0.66195   0.43818   0.00629    -0.15737      0.2345459E-03         0.26904
P5                                             0.67249   0.45224   0.01406     0.13936      0.1783218             0.17157
R1                                             0.67695   0.45826   0.00602     0.10506      1.129970              0.07498
P17                                            0.67906   0.46112   0.00285    -0.27992      0.7981570E-02         0.43636
P20                                            0.68397   0.46781   0.00669    -0.18419     -0.3871671E-01        -1.09326
P19                                            0.68529   0.46962   0.00181    -0.09698     -0.4134445E-01        -0.84299
P8                                             0.68672   0.47159   0.00196    -0.00764     71.79478               0.69926
P1                                             0.68736   0.47246   0.00088    -0.28037     -0.2910520E-03        -0.10709
P10                                            0.68777   0.47303   0.00057    -0.28529      0.5259212E-02         0.29102
P14                                            0.68800   0.47334   0.00031     0.04148     -0.6385572E-02        -0.04649
P11                                            0.68834   0.47381   0.00047    -0.02944     -0.2503399E-02        -0.06964
R5                                             0.68847   0.47399   0.00017    -0.02078      0.2745829E-01         0.00141
P22                                            0.68857   0.47412   0.00014    -0.09576      0.1793167E-01         7.69263
P23                                            0.69482   0.48277   0.00865    -0.09202     -0.9541938E-02        -4.10512
P21                                            0.70352   0.49494   0.01217    -0.09765     -0.4600453E-02        -3.57293
P18                                            0.70603   0.49848   0.00353    -0.26677      0.4207482E-02         0.17336
P7                                             0.70713   0.50003   0.00155     0.02312     -5.276325             -0.08099
R6                                             0.70721   0.50015   0.00012     0.03829     -0.2368607            -0.01572
P12                                            0.70730   0.50027   0.00012    -0.03516      0.5055760E-03         0.01514
(CONSTANT)                                                                               -14.90806
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                    08/25/80       PAGE  347
JUNIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST  4

DEPENDENT VARIABLE..    C59

VARIABLE(S) ENTERED ON STEP NUMBER  6..     R2

MULTIPLE R            0.46010         ANALYSIS OF VARIANCE     DF       SUM OF SQUARES       MEAN SQUARE          F          P
R SQUARE              0.21169         REGRESSION                6.          877.26465         146.21077       3.84911     0.0019
ADJUSTED R SQUARE     0.15670         RESIDUAL                 86.         3266.76074          37.98559
STANDARD ERROR        6.16325

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B              BETA      STD ERROR B        F      VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

P8             -45.03454         -0.38147       13.37489     11.337      P1            0.02295      0.02041      0.62332      0.035
P5             -0.1830954        -0.15321        0.11777      2.417      P2           -0.03976     -0.02911      0.42270      0.072
P16            -0.2360025E-01    -0.49487        0.00842      7.864      P3            0.04852      0.04861      0.79146      0.201
P17             0.8958208E-02     0.42594        0.00384      5.441      P4           -0.15290     -0.10637      0.38151      0.973
P7              17.43813          0.23280        9.20412      3.590      P6            0.05509      0.05339      0.74024      0.243
R2              2.532634          0.13484        1.80890      1.960      P9           -0.11072     -0.07512      0.36292      0.482
(CONSTANT)      4.930075                                                 P10          -0.01269     -0.00263      0.03392      0.001
                                                                         P11          -0.08896     -0.07061      0.49661      0.426
                                                                         P12           0.01794      0.01820      0.81087      0.028
                                                                         P13          -0.03482     -0.03513      0.80281      0.105
                                                                         P14           0.03699      0.03575      0.73611      0.109
                                                                         P15           0.08749      0.06067      0.37907      0.314
                                                                         P18           0.01540      0.00933      0.28901      0.007
                                                                         P19           0.42540      0.08874      0.03430      0.675
                                                                         P20          -0.15242     -0.08290      0.23317      0.588
                                                                         P21          -0.08356     -0.09027      0.92000      0.698
                                                                         P22          -0.08226     -0.08896      0.92212      0.678
                                                                         P23          -0.07751     -0.08353      0.91549      0.597
                                                                         P24          -0.08176     -0.08829      0.91927      0.668
                                                                         JUR           0.06204      0.05500      0.61956      0.258
                                                                         R1            0.04514      0.04524      0.79171      0.174
                                                                         R3           -0.07937     -0.08587      0.92272      0.631
                                                                         R4           -0.02554     -0.02799      0.94627      0.067
                                                                         R5            0.07525      0.07994      0.88962      0.547
                                                                         R6            0.04763      0.05122      0.91158      0.224
                                                                         R7           -0.08327     -0.09065      0.93428      0.704
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80       PAGE  366
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  4
DEPENDENT VARIABLE..    C59

                                                              SUMMARY TABLE

VARIABLE                                          MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                  BETA

P8                                                 0.30761    0.09462    0.09462    -0.30761     -89.24363               -0.75595
P5                                                 0.33709    0.11363    0.01900    -0.11021     -0.2147659              -0.17971
P16                                                0.37419    0.14002    0.02639    -0.03441     -0.2321115E-01          -0.48671
P17                                                0.40316    0.16254    0.02252    -0.01069      0.1125700E-01           0.53525
P7                                                 0.44014    0.19373    0.03119     0.22387      20.07446                0.26799
R2                                                 0.46010    0.21169    0.01797     0.09547      3.268658                0.17403
P4                                                 0.46969    0.22061    0.00892     0.09043     -0.1664876E-03          -0.16609
R5                                                 0.47730    0.22781    0.00720     0.11233      1.743967                0.07799
P19                                                0.48197    0.23229    0.00448    -0.28277      0.1963969E-01           0.34827
R6                                                 0.48582    0.23602    0.00373     0.06218      0.8059126               0.04651
JUR                                                0.48909    0.23921    0.00319    -0.04255      2.505389                0.17742
P11                                                0.49172    0.24179    0.00258     0.01990     -0.4122211E-02          -0.09973
P13                                                0.49469    0.24472    0.00293    -0.07343     -0.1041356E-03          -0.06376
P15                                                0.49645    0.24646    0.00175    -0.03699      0.6980385E-02           0.07452
R7                                                 0.49863    0.24863    0.00216    -0.02113     -8.668989               -0.20168
P9                                                 0.50057    0.25057    0.00194     0.12231      27.08901                0.26629
R3                                                 0.50170    0.25170    0.00113    -0.08863     -0.5415628              -0.03281
P23                                                0.50273    0.25274    0.00104     0.00600      0.3971004E-02           1.48580
P24                                                0.50855    0.25862    0.00588    -0.00071     -0.9437693E-03          -1.34075
P20                                                0.51006    0.26016    0.00154     0.07941     -0.8512185E-02          -0.20904
P3                                                 0.51069    0.26080    0.00064     0.05523      1.135294                0.02835
P2                                                 0.51115    0.26128    0.00047    -0.00756     -0.9836392              -0.04926
P18                                                0.51128    0.26141    0.00013     0.14019     -0.8132972E-03          -0.02914
R4                                                 0.51143    0.26156    0.00015    -0.01010     -0.3225252              -0.01756
(CONSTANT)                                                                                       3.926200
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                          08/25/80      PAGE  379
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  5

DEPENDENT VARIABLE..     C75

VARIABLE(S) ENTERED ON STEP NUMBER 13..     P14

MULTIPLE R          0.52987          ANALYSIS OF VARIANCE      DF        SUM OF SQUARES        MEAN SQUARE            F           P
R SQUARE            0.28076          REGRESSION                13.          859.79771           66.13829          2.37222     0.0097
ADJUSTED R SQUARE   0.16241          RESIDUAL                  79.         2202.54596           27.88033
STANDARD ERROR      5.28018

------------------ VARIABLES IN THE EQUATION ------------------            ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B             BETA       STD ERROR B        F        VARIABLE      BETA IN      PARTIAL    TOLERANCE        F

P13         -0.4502096E-03       -0.32067         0.00015        9.206      P2           -0.02043     -0.01144     0.22550       0.010
R2            5.628386            0.34860         1.87195        9.040      P3            0.05871      0.05655     0.66709       0.250
P11         -0.1079048E-01       -0.30368         0.00495        4.754      P5            0.00592      0.00607     0.75547       0.003
P4           0.2881399E-03        0.33439         0.00018        2.438      P6            0.00208      0.00191     0.60548       0.000
P20          0.8892340E-03        0.02540         0.00921        0.009      P7           -0.02729     -0.02340     0.52889       0.043
P15          0.1276622E-01        0.15854         0.01332        0.918      P8           -0.02285     -0.01460     0.29378       0.017
P10         -0.2323700E-01       -1.30088         0.00990        5.512      P9            0.01390      0.00324     0.03907       0.001
P17          0.2279592E-01        1.26087         0.00988        5.321      P16          -0.15028     -0.07634     0.18561       0.457
R1            3.171364            0.21289         1.79183        3.133      P18          -0.00326     -0.00264     0.47252       0.001
R4            2.284824            0.14468         1.61417        2.004      P19          -0.00454     -0.00272     0.25899       0.001
P12         -0.4959851E-02       -0.15026         0.00364        1.859      P21           0.00757      0.00799     0.80072       0.005
P1          -0.5284677E-03       -0.19672         0.00031        2.867      P22           0.00654      0.00690     0.79992       0.004
P14         -0.1870947E-01       -0.13781         0.01732        1.166      P23           0.00501      0.00525     0.78959       0.002
(CONSTANT)   34.48199                                                       P24           0.00665      0.00700     0.79744       0.004
                                                                            JUR           0.01654      0.01195     0.37589       0.011
                                                                            R3           -0.05381     -0.04974     0.61449       0.193
                                                                            R5            0.03851      0.03941     0.75328       0.121
                                                                            R6            0.02748      0.02762     0.72682       0 060
                                                                            R7           -0.02528     -0.02735     0.84174       0.058
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE  394
JUNIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                              REGRESSION LIST  5

DEPENDENT VARIABLE..     C75

                                                 SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                    BETA

P13                                         0.21642    0.04684    0.04684    -0.21642     -0.5042493E-03            -0.35917
R2                                          0.29001    0.08411    0.03727     0.12755      4.868761                  0.30155
P11                                         0.32787    0.10750    0.02339    -0.13380     -0.1202212E-01            -0.33834
P4                                          0.37630    0.14160    0.03411     0.07364      0.3042810E-03             0.35312
P20                                         0.39874    0.15900    0.01739    -0.04935      0.8335668E-02             0.23813
P15                                         0.41587    0.17294    0.01395    -0.02037      0.1267434E-01             0.15740
P10                                         0.43397    0.18833    0.01538    -0.11598     -0.2429876E-01            -1.36033
P17                                         0.46412    0.21541    0.02708    -0.07872      0.2583884E-01             1.42918
R1                                          0.47854    0.22901    0.01360    -0.01526      2.686660                  0.18035
R4                                          0.49246    0.24252    0.01351     0.08306      1.944272                  0.12312
P12                                         0.50329    0.25331    0.01079    -0.14056     -0.5395642E-02            -0.16346
P1                                          0.51975    0.27014    0.01684    -0.04719     -0.7237563E-03            -0.26942
P14                                         0.52987    0.28076    0.01062    -0.11128     -0.2132322E-01            -0.15706
P16                                         0.53381    0.28496    0.00419    -0.02179     -0.1122232E-01            -0.27374
R3                                          0.53588    0.28717    0.00221    -0.09324     -0.9346107                -0.06586
P2                                          0.53815    0.28961    0.00244    -0.03383     -3.075099                 -0.17916
R7                                          0.53969    0.29126    0.00165     0.01442     -6.734227                 -0.18225
P22                                         0.54182    0.29356    0.00230     0.04928      0.3813591E-02             1.65517
P9                                          0.54328    0.29515    0.00159    -0.01692    -15.95004                  -0.18239
P3                                          0.54436    0.29633    0.00118     0.09358      2.997720                  0.08708
P6                                          0.54547    0.29754    0.00120    -0.04114     -0.7132433E-01            -0.06268
JUR                                         0.54612    0.29825    0.00071    -0.09234      0.6616768                 0.05451
P18                                         0.54668    0.29886    0.00061    -0.02750      0.1947040E-02             0.08116
P7                                          0.54710    0.29932    0.00046     0.11761     -2.806040                 -0.04358
P21                                         0.54732    0.29956    0.00024     0.04715     -0.1073413E-02            -0.84342
P23                                         0.54785    0.30014    0.00058     0.05273     -0.1525862E-02            -0.66414
P5                                          0.54805    0.30036    0.00023    -0.09484      0.1945028E-01             0.01893
(CONSTANT)                                                                                34.21066
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80        PAGE  400
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  6

DEPENDENT VARIABLE..      C91

VARIABLE(S) ENTERED ON STEP NUMBER  6..      P13


MULTIPLE R           0.57452           ANALYSIS OF VARIANCE     DF      SUM OF SQUARES       MEAN SQUARE              F          P
R SQUARE             0.33008           REGRESSION                6.         3061.15288         510.19215        7.06222     0.0000
ADJUSTED R SQUARE    0.28334           RESIDUAL                 86.         6212.85380          72.24249
STANDARD ERROR       8.49956


----------------- VARIABLES IN THE EQUATION ------------------       ------------ VARIABLES NOT IN THE EQUATION ------------

VARIABLE               B           BETA     STD ERROR B       F       VARIABLE     BETA IN      PARTIAL    TOLERANCE          F

JUR          -8.550177         -0.40475       2.38801     12.820      P1          -0.01443     -0.01276    0.52323        0.014
P16         -0.3187106E-01     -0.44673       0.00841     14.369      P2           0.01863      0.01304    0.32810        0.014
P4           0.4366031E-03      0.29116       0.00019      5.429      P3           0.01476      0.01642    0.82947        0.023
R5          -4.946763          -0.14788       3.13535      2.489      P5           0.01342      0.01559    0.90432        0.021
P8          -38.98998          -0.22077      19.43823      4.023      P6           0.05977      0.06458    0.78221        0.356
P13          0.4060132E-03      0.16618       0.00023      3.102      P7           0.04511      0.04880    0.78398        0.203
(CONSTANT)   20.82800                                                 P9          -0.16987     -0.10217    0.24237        0.897
                                                                      P10          0.01187      0.00740    0.26012        0.005
                                                                      P11         -0.06776     -0.07609    0.84492        0.495
                                                                      P12          0.01180      0.01327    0.84673        0.015
                                                                      P14         -0.00018     -0.00018    0.66406        0.000
                                                                      P15          0.04658      0.04268    0.56252        0.155
                                                                      P17         -0.06016     -0.03813    0.26909        0.124
                                                                      P18         -0.07391     -0.06187    0.46945        0.327
                                                                      P19          0.04788      0.01544    0.06970        0.020
                                                                      P20         -0.17376     -0.09599    0.20442        0.790
                                                                      P21          0.02070      0.02277    0.81056        0.044
                                                                      P22          0.02438      0.02676    0.80741        0.061
                                                                      P23          0.02671      0.02907    0.79352        0.072
                                                                      P24          0.02327      0.02550    0.80488        0.055
                                                                      R1          -0.02589     -0.02789    0.77736        0.066
                                                                      R2          -0.00029     -0.00033    0.84545        0.000
                                                                      R3           0.07005      0.08307    0.94208        0.591
                                                                      R4          -0.06776     -0.08083    0.95324        0.559
                                                                      R6           0.02653      0.03124    0.92910        0.083
                                                                      R7          -0.03518     -0.03987    0.86058        0.135
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                  08/25/80       PAGE  422
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                          REGRESSION LIST  6

DEPENDENT VARIABLE..    C91

                                              SUMMARY TABLE

VARIABLE                             MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B             BETA

JUR                                   0.34276   0.11748   0.11748   -0.34276     -5.931061          -0.28077
P16                                   0.42978   0.18471   0.06723   -0.03345    -0.1653447E-01      -0.23176
P4                                    0.51647   0.26674   0.08203    0.28501     0.7174575E-03       0.47845
R5                                    0.53518   0.28642   0.01968   -0.07935     -7.002674          -0.20934
P8                                    0.55309   0.30591   0.01949   -0.33442     -135.6880          -0.76830
P13                                   0.57452   0.33008   0.02417    0.04729     0.5657992E-03       0.23158
P9                                    0.58058   0.33707   0.00699    0.30256      53.07885           0.34878
R4                                    0.58570   0.34304   0.00597    0.00238     -3.768948          -0.13714
P6                                    0.58816   0.34593   0.00288   -0.09885     0.1725479           0.08713
P5                                    0.59036   0.34853   0.00260    0.10680     0.1970324E-02       0.00110
R3                                    0.59274   0.35134   0.00282    0.13794      1.218113           0.04933
P12                                   0.59689   0.35627   0.00493   -0.03744     0.8703779E-02       0.15152
P18                                   0.59951   0.35941   0.00314    0.05641    -0.1486642E-01      -0.35611
P7                                    0.60463   0.36558   0.00617    0.10891      35.44349           0.31629
P19                                   0.61012   0.37225   0.00667   -0.29318     0.2502464E-01       0.29664
P17                                   0.61200   0.37454   0.00229   -0.01868    -0.3563087E-01      -1.13249
P10                                   0.63192   0.39932   0.02478   -0.00032     0.4862621E-01       1.56431
P20                                   0.63740   0.40628   0.00697    0.19548    -0.6301601E-01      -1.03449
P23                                   0.63927   0.40866   0.00238    0.22891     0.5090422E-02       1.27319
R7                                    0.65013   0.42268   0.01401    0.09388     -23.72463          -0.36896
P21                                   0.65798   0.43294   0.01027    0.22096    -0.1925129E-02      -0.86922
R1                                    0.66017   0.43582   0.00288   -0.24056     -2.190002          -0.08448
P14                                   0.66154   0.43764   0.00181   -0.21463     0.1964900E-01       0.08317
P3                                    0.66302   0.43959   0.00196    0.00153     -3.087782          -0.05154
P15                                   0.66384   0.44069   0.00109    0.09042     0.1036006E-01       0.07393
P11                                   0.66449   0.44155   0.00086    0.00640     0.3094208E-02       0.05004
P2                                    0.66466   0.44178   0.00023   -0.02695     0.9849876           0.03298
(CONSTANT)                                                                       -17.47064
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                                   08/25/80        PAGE  431
JUNIOR HIGH ONLY
FILE    NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                       REGRESSION LIST  7

DEPENDENT VARIABLE..     C107

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P2

MULTIPLE R            0.64132           ANALYSIS OF VARIANCE     DF        SUM OF SQUARES          MEAN SQUARE              F           P
R SQUARE              0.41129           REGRESSION                9.           1386.93998            154.10444          6.44291      0.0000
ADJUSTED R SQUARE     0.34745           RESIDUAL                 83.           1985.23068             23.91844
STANDARD ERROR        4.89065

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B             BETA      STD ERROR B         F          VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

R2            6.890413          0.40668       1.53318       20.198          P1          -0.00863     -0.00617      0.30106      0.003
P16          -0.1480172E-01    -0.34407       0.00680        4.743          P3          -0.04201     -0.04724      0.74463      0.183
P4            0.4381237E-03     0.48452       0.00016        7.931          P5          -0.02952     -0.03377      0.77025      0.094
R3            2.092119          0.14049       1.33930        2.440          P6          -0.08768     -0.09092      0.63301      0.683
P8           28.95700           0.27191      12.70250        5.197          P7          -0.09534     -0.09327      0.56343      0.720
JUR          -5.598882         -0.43954       1.64594       11.571          P10          0.15581      0.07400      0.13279      0.451
P15          -0.1563952E-01    -0.18509       0.00984        2.527          P11          0.09518      0.10029      0.65367      0.833
P9          -22.00314          -0.23977      15.63406        1.981          P12          0.02914      0.03249      0.73203      0.087
P2            3.328103          0.18477       2.64598        1.582          P13          0.03472      0.03847      0.72247      0.122
(CONSTANT)    5.211057                                                      P14         -0.00026     -0.00027      0.63767      0.000
                                                                            P17          0.21741      0.11356      0.16062      1.071
                                                                            P18         -0.07138     -0.06336      0.46376      0.330
                                                                            P19          0.34682      0.09317      0.04249      0.718
                                                                            P20          0.08375      0.01955      0.03209      0.031
                                                                            P21          0.03846      0.04441      0.78480      0.162
                                                                            P22          0.04377      0.05053      0.78446      0.210
                                                                            P23          0.04041      0.04622      0.77031      0.176
                                                                            P24          0.04044      0.04657      0.78057      0.178
                                                                            R1           0.11209      0.11655      0.63650      1.129
                                                                            R4          -0.02021     -0.02408      0.83640      0.048
                                                                            R5          -0.07282     -0.08574      0.81626      0.607
                                                                            R6          -0.02089     -0.02402      0.77812      0.047
                                                                            R7           0.02067      0.02454      0.83009      0.049
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                08/25/80       PAGE  453
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                       REGRESSION LIST  7

DEPENDENT VARIABLE..     C107

                                                  SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                  BETA

R2                                           0.37931    0.14387   0.14387     0.37931     6.297745              0.37170
P16                                          0.45935    0.21101   0.06713    -0.26334    -0.1418863E-01        -0.32981
P4                                           0.50843    0.25850   0.04750    -0.04859     0.3990054E-03         0.44126
R3                                           0.54017    0.29179   0.03329     0.12926     2.860978              0.19212
P8                                           0.56646    0.32088   0.02909     0.17673    -2.572968             -0.02416
JUR                                          0.60541    0.36653   0.04565    -0.04530    -4.972815             -0.39039
P15                                          0.62222    0.38716   0.02064    -0.18384    -0.1908703E-01        -0.22589
P9                                           0.63251    0.40007   0.01291    -0.11516     6.720915              0.07324
P2                                           0.64132    0.41129   0.01122     0.22843     1.679740              0.09326
R1                                           0.64752    0.41929   0.00800    -0.09985     2.077505              0.13290
P17                                          0.65253    0.42580   0.00651    -0.12140     0.4322225E-02         0.22782
P6                                           0.65894    0.43420   0.00841    -0.04620    -0.1996957            -0.16723
P18                                          0.66190    0.43811   0.00390    -0.20546    -0.8877648E-03        -0.03527
P19                                          0.66462    0.44172   0.00362     0.13093     0.1052323E-01         0.20686
P14                                          0.66720    0.44516   0.00343    -0.08160    -0.1295010E-01        -0.09090
P1                                           0.66913    0.44774   0.00258    -0.20841    -0.7494442E-03        -0.26585
P5                                           0.67093    0.45015   0.00241    -0.07449    -0.5043439E-01        -0.04678
P13                                          0.67265    0.45246   0.00232     0.11882     0.5327717E-04         0.03616
R5                                           0.67396    0.45422   0.00176    -0.18726    -0.7182726            -0.03561
P20                                          0.67480    0.45535   0.00113    -0.15765    -0.1882328E-01        -0.51245
P22                                          0.67561    0.45645   0.00110     0.10871     0.1698716E-01         7.02591
P21                                          0.68025    0.46274   0.00629     0.10400    -0.5604204E-02        -4.19628
P23                                          0.68757    0.47276   0.01002     0.10750    -0.6369838E-02        -2.64208
R7                                           0.69128    0.47786   0.00510     0.05263    -7.490129             -0.19317
P3                                           0.69167    0.47841   0.00055     0.13380     1.916984              0.05307
P7                                           0.69216    0.47909   0.00068    -0.08433    -2.755852             -0.04078
P12                                          0.69235    0.47935   0.00027    -0.06004     0.9388815E-03         0.02711
P11                                          0.69256    0.47965   0.00029     0.01731     0.1194425E-02         0.03203
R6                                           0.69274    0.47989   0.00024    -0.13268     0.3857560             0.02468
P10                                          0.69289    0.48010   0.00021    -0.13307     0.2468345E-02         0.13169
(CONSTANT)                                                                              -0.3608201
```

```
(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80       PAGE  461
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                             REGRESSION LIST  8

DEPENDENT VARIABLE..     C116

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P17

MULTIPLE R              0.44554        ANALYSIS OF VARIANCE     DF      SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE                0.19851        REGRESSION               8.            88.85593           11.10699          2.60056    0.0137
ADJUSTED R SQUARE       0.12218        RESIDUAL                84.           358.76329            4.27099
STANDARD ERROR          2.06664

----------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE            B            BETA      STD ERROR B       F        VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

P14          0.2144812E-01     0.41321       0.00606      12.535      P1           -0.05707     -0.03424     0.28842        0.097
R4           0.5687747         0.09420       0.62797       0.820      P4            0.15452      0.11022     0.40782        1.021
P2          -1.549532         -0.23613       0.81632       3.603      P5           -0.00070     -0.00075     0.91918        0.000
P18         -0.1659833E-02    -0.18097       0.00123       1.813      P7           -0.00223     -0.00153     0.37809        0.000
R1          -0.9635595        -0.16919       0.61709       2.438      P8           -0.02949     -0.02412     0.53655        0.048
P3          -2.944080         -0.22370       1.71780       2.937      P9            0.03573      0.02817     0.49843        0.066
P6           0.9776665E-01     0.22472       0.05594       3.054      P10           0.02344      0.00522     0.03975        0.002
P17         -0.1147345E-02    -0.16599       0.00105       1.195      P11          -0.00640     -0.00513     0.51490        0.002
(CONSTANT)   6.645784                                                 P12          -0.04667     -0.04370     0.70270        0.159
                                                                      P13          -0.07858     -0.08332     0.90091        0.580
                                                                      P15          -0.03689     -0.02518     0.37340        0.053
                                                                      P16          -0.01887     -0.00873     0.17164        0.006
                                                                      P19          -0.06041     -0.04729     0.49115        0.186
                                                                      P20           0.10441      0.06357     0.29710        0.337
                                                                      P21           0.03645      0.03789     0.86587        0.119
                                                                      P22           0.04157      0.04322     0.86654        0.155
                                                                      P23           0.05316      0.05516     0.86282        0.253
                                                                      P24           0.04224      0.04389     0.86532        0.160
                                                                      JUR           0.02572      0.01953     0.46189        0.032
                                                                      R2           -0.00388     -0.00398     0.84454        0.001
                                                                      R3           -0.00253     -0.00254     0.81092        0.001
                                                                      R5           -0.04251     -0.04417     0.86528        0.162
                                                                      R6            0.03736      0.03809     0.83340        0.121
                                                                      R7            0.00805      0.00846     0.88431        0.006
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                       08/25/80        PAGE  483
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                              REGRESSION LIST  8

DEPENDENT VARIABLE..    C116

                                                        SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                BETA

P14                                            0.28681   0.08226   0.08226    0.28681     0.1814761E-01        0.34962
R4                                             0.33476   0.11206   0.02980    0.14814     0.2239456            0.03709
P2                                             0.35643   0.12704   0.01498   -0.09901    -2.955771            -0.45042
P18                                            0.38515   0.14834   0.02130   -0.02661    -0.1989522E-02       -0.21692
R1                                             0.40061   0.16048   0.01215   -0.05529    -1.162022            -0.20403
P3                                             0.40999   0.16810   0.00761   -0.13866    -2.991839            -0.22733
P6                                             0.43256   0.18711   0.01901    0.06142     0.1222168            0.28092
P17                                            0.44554   0.19851   0.01140    0.09838     0.1943353E-02        0.28115
P4                                             0.45634   0.20825   0.00974    0.05494     0.7459992E-04        0.22644
P13                                            0.46052   0.21208   0.00383   -0.09225    -0.5721159E-04       -0.10659
R5                                             0.46425   0.21553   0.00345   -0.05373    -0.7748647           -0.10544
JUR                                            0.46899   0.21995   0.00442    0.04556     0.5332419            0.11490
P9                                             0.47204   0.22282   0.00287   -0.04341   -30.26064             -0.90509
P20                                            0.47771   0.22821   0.00539    0.01887     0.1695336E-01        1.26680
P16                                            0.48755   0.23770   0.00949    0.09070    -0.4877831E-02       -0.31121
P5                                             0.48957   0.23967   0.00197   -0.10359     0.1196587E-01        0.03046
P10                                            0.49212   0.24219   0.00251    0.09249    -0.4983948E-02       -0.72980
P8                                             0.49529   0.24532   0.00313    0.09565     5.348896             0.13786
P12                                            0.49705   0.24706   0.00174    0.03640    -0.1314952E-02       -0.10420
R3                                             0.49945   0.24945   0.00239    0.01957    -0.2956290           -0.05449
R7                                             0.50152   0.25152   0.00207   -0.09532    -3.755500            -0.26584
P23                                            0.50786   0.25792   0.00640   -0.07565     0.2923630E-02        3.32843
P22                                            0.52652   0.27723   0.01931   -0.08464    -0.3636474E-02       -4.12822
P1                                             0.52911   0.27996   0.00273   -0.01062     0.1494327E-03        0.14550
P11                                            0.53062   0.28155   0.00160   -0.02510    -0.1056320E-02       -0.07776
P21                                            0.53168   0.28269   0.00113   -0.08823     0.5102232E-03        1.04860
P7                                             0.53221   0.28325   0.00057   -0.11561    -1.295703            -0.05263
P15                                            0.53272   0.28379   0.00053    0.03647    -0.1312135E-02       -0.04262
R2                                             0.53292   0.28401   0.00022   -0.04514     0.1397047            0.02263
(CONSTANT)                                                                                14.35747
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                08/25/80        PAGE  494
JUNIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)
* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  9

DEPENDENT VARIABLE..     C125

VARIABLE(S) ENTERED ON STEP NUMBER 11..     P19

MULTIPLE R            0.65573          ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE           F          P
R SQUARE              0.42998          REGRESSION             11.            651.09783           59.19071       5.55457    0.0000
ADJUSTED R SQUARE     0.35257          RESIDUAL               81.            863.15356           10.65622
STANDARD ERROR        3.26439

------------------ VARIABLES IN THE EQUATION ------------------          -------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE              B             BETA     STD ERROR B       F          VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

JUR              -3.432617       -0.40214       1.15577     8.821         P1           -0.14508     -0.10330      0.28898      0.863
P16          -0.3901212E-02      -0.13533       0.00690     0.320         P3           -0.10647     -0.12467      0.78152      1.263
P8                20.96587        0.29379      37.03764     0.320         P4           -0.03363     -0.02069      0.21575      0.034
P17           0.3769367E-02       0.29649       0.00556     0.460         P5            0.04453      0.05235      0.78768      0.220
P20          -0.7122308E-01      -2.89354       0.02160    10.870         P6            0.05672      0.05980      0.63359      0.287
R5               -2.341988       -0.17326       1.20960     3.749         P7           -0.05552     -0.05402      0.53973      0.234
P13           0.1674253E-03       0.16959       0.00009     3.407         P11           0.07853      0.06973      0.44936      0.391
P2                5.331274        0.44170       2.05813     6.710         P12           0.10819      0.12320      0.73911      1.233
P9                102.1254        1.66075      37.33824     7.481         P14          -0.06125     -0.06119      0.56899      0.301
P10           0.1862762E-01       1.48301       0.00856     4.738         P15           0.08970      0.06741      0.32184      0.365
P19          -0.3818602E-01      -1.12020       0.02073     3.395         P18          -0.09422     -0.08377      0.45056      0.565
(CONSTANT)       -27.55033                                                P21           0.06256      0.07373      0.79173      0.437
                                                                          P22           0.06929      0.08168      0.79227      0.537
                                                                          P23           0.07796      0.09132      0.78216      0.673
                                                                          P24           0.06847      0.08056      0.78906      0.523
                                                                          R1            0.05642      0.06492      0.75459      0.339
                                                                          R2           -0.04446     -0.05334      0.82040      0.228
                                                                          R3           -0.06478     -0.08194      0.91198      0.541
                                                                          R4           -0.01241     -0.01584      0.92940      0.020
                                                                          R6            0.04971      0.06136      0.86843      0.302
                                                                          R7            0.06229      0.07588      0.84591      0.463
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  511
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  9
DEPENDENT VARIABLE..     C125

                                                    SUMMARY TABLE

VARIABLE                                        MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                   BETA

JUR                                               0.35295    0.12457    0.12457   -0.35295     -3.631053                -0.42538
P16                                               0.45240    0.20467    0.08009   -0.04792      0.3191186E-02            0.11070
P8                                                0.48541    0.23562    0.03096   -0.28428     -20.21027                -0.28320
P17                                               0.52091    0.27135    0.03572    0.03733     -0.1790147E-02           -0.14081
P20                                               0.55413    0.30706    0.03571    0.07902     -0.6990479E-01           -2.83998
R5                                                0.57824    0.33436    0.02731   -0.14487     -1.844044                -0.13642
P13                                               0.59675    0.35611    0.02175    0.02662      0.2737814E-03            0.27732
P2                                                0.61225    0.37485    0.01874   -0.00321      3.909443                 0.32390
P9                                                0.62694    0.39305    0.01820    0.16960      97.55045                 1.58635
P10                                               0.63725    0.40609    0.01304    0.01662      0.1990787E-01            1.58494
P19                                               0.65573    0.42998    0.02389   -0.22153     -0.2142702E-01           -0.62857
P3                                                0.66245    0.43884    0.00886   -0.07597     -4.004171                -0.16542
P6                                                0.67253    0.45229    0.01345   -0.00524      0.1516354                0.18950
P18                                               0.67868    0.46061    0.00831   -0.01538     -0.4042126E-02           -0.23962
P12                                               0.68381    0.46759    0.00699   -0.00034      0.2363669E-02            0.10183
P23                                               0.68691    0.47184    0.00425    0.16657      0.1950222E-02            1.20714
P21                                               0.69404    0.48169    0.00984    0.15526     -0.9247560E-03           -1.03332
R4                                                0.69715    0.48602    0.00433    0.03948     -0.4234310               -0.03813
P11                                               0.69849    0.48788    0.00187    0.14708      0.2249753E-02            0.09004
P1                                                0.70037    0.49052    0.00264    0.02006     -0.2714835E-03           -0.14372
R7                                                0.70174    0.49244    0.00191    0.09359     -2.166423                -0.08338
R1                                                0.70256    0.49358    0.00115   -0.09713      0.7732767                0.07382
P15                                               0.70333    0.49467    0.00109    0.14823     -0.4350952E-02           -0.07684
R6                                                0.70398    0.49559    0.00092    0.14204      0.5097578                0.04866
P7                                                0.70445    0.49625    0.00066   -0.01892      2.425078                 0.05356
R3                                                0.70454    0.49637    0.00012   -0.05229      0.1732162                0.01736
P14                                               0.70459    0.49645    0.00008   -0.23663      0.1331028E-02            0.01394
(CONSTANT)                                                                                     -17.02311
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  521
JUNIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E    R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                         REGRESSION LIST 10

DEPENDENT VARIABLE..      C134

VARIABLE(S) ENTERED ON STEP NUMBER 10..      P10

MULTIPLE R              0.58900         ANALYSIS OF VARIANCE     DF        SUM OF SQUARES         MEAN SQUARE              F          P
R SQUARE                0.34692         REGRESSION               10.          470.01981            47.00198          4.35585     0.0001
ADJUSTED R SQUARE       0.26727         RESIDUAL                 82.          884.82518            10.79055
STANDARD ERROR          3.28490

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE                 B           BETA     STD ERROR B       F        VARIABLE        BETA IN       PARTIAL    TOLERANCE          F

JUR             -3.083580        -0.38191        1.12959      7.452      P2              0.16862       0.08757      0.17615      0.626
P16              0.3648669E-02    0.13381        0.00617      0.350      P3             -0.06982      -0.06439      0.55544      0.337
P6               0.1123985        0.14850        0.08258      1.853      P4              0.06033       0.03522      0.22259      0.101
P9              85.47226          1.46943       31.43158      7.395      P5              0.02747       0.03181      0.87559      0.082
P20             -0.4729189E-01   -2.03118        0.01723      7.536      P7              0.03655       0.03376      0.55729      0.092
P11              0.4070772E-02    0.17224        0.00292      1.939      P12             0.08082       0.08779      0.77054      0.629
P1              -0.4860657E-03   -0.27203        0.00025      3.818      P14            -0.01013      -0.00912      0.53004      0.007
P13              0.1349208E-03    0.14448        0.00009      2.069      P15            -0.00986      -0.00686      0.31689      0.004
P8             -19.14654         -0.28364       10.68944      3.208      P17            -0.15102      -0.03329      0.03174      0.090
P10              0.5997277E-02    0.50477        0.00420      2.038      P18            -0.02945      -0.02489      0.46650      0.050
(CONSTANT)      -6.848998                                                P19            -0.66400      -0.11355      0.01910      1.058
                                                                         P21             0.07965       0.08803      0.79773      0.633
                                                                         P22             0.09017       0.09966      0.79770      0.813
                                                                         P23             0.10054       0.11054      0.78944      1.002
                                                                         P24             0.08801       0.09713      0.79542      0.771
                                                                         R1             -0.01910      -0.02027      0.73527      0.033
                                                                         R2             -0.01570      -0.01746      0.80726      0.025
                                                                         R3             -0.00451      -0.00532      0.90872      0.002
                                                                         R4              0.04051       0.04919      0.96286      0.196
                                                                         R5             -0.10034      -0.11678      0.88455      1.120
                                                                         R6              0.03644       0.04340      0.92597      0.153
                                                                         R7              0.08326       0.09521      0.85406      0.741
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC--=1=SEP                 08/25/80      PAGE  539
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST 10

DEPENDENT VARIABLE..     C134

                                                      SUMMARY TABLE

VARIABLE                                  MULTIPLE R   R SQUARE   RSQ CHANGE   SIMPLE R           B                    BETA

JUR                                        0.40687     0.16555     0.16555     -0.40687      -2.707341               -0.33531
P16                                        0.46221     0.21364     0.04809      0.03481       0.8881408E-02           0.32570
P6                                         0.48406     0.23432     0.02068      0.10388       0.1903922               0.25154
P9                                         0.50118     0.25118     0.01687      0.24231        108.4205               1.86396
P20                                        0.51923     0.26960     0.01842      0.13967      -0.6631420E-01          -2.84819
P11                                        0.53449     0.28568     0.01608      0.18174       0.4887314E-02           0.20679
P1                                         0.55018     0.30270     0.01701      0.10681      -0.1947433E-03          -0.10899
P13                                        0.56467     0.31885     0.01615      0.01387       0.1868923E-03           0.20013
P8                                         0.57506     0.33069     0.01184     -0.19656        8.248608               0.12220
P10                                        0.58900     0.34692     0.01623      0.07742       0.1592926E-01           1.34071
R5                                         0.59651     0.35582     0.00891     -0.11364       -1.902537              -0.14880
P19                                        0.60641     0.36774     0.01192     -0.12293      -0.1967062E-01          -0.61004
P23                                        0.61272     0.37542     0.00768      0.19577       0.1997588E-02           1.30717
P21                                        0.62467     0.39021     0.01479      0.18789      -0.9514681E-03          -1.12397
P2                                         0.63006     0.39698     0.00677     -0.11906        2.273554               0.19914
P12                                        0.63457     0.40268     0.00570     -0.01202       0.2630644E-02           0.11982
R7                                         0.63595     0.40443     0.00175      0.11995       -2.571205              -0.10462
P17                                        0.63709     0.40588     0.00145      0.08813      -0.4627757E-02          -0.38483
P18                                        0.63811     0.40718     0.00130      0.06178      -0.2201849E-02          -0.13799
P7                                         0.63909     0.40843     0.00125      0.01053        4.157832               0.09708
R1                                         0.64010     0.40973     0.00129     -0.15085      -0.6614351              -0.06675
R2                                         0.64118     0.41112     0.00139      0.03688      -0.3290473              -0.03064
P15                                        0.64175     0.41185     0.00073      0.20751       0.3203281E-02           0.05981
P4                                         0.64223     0.41245     0.00061      0.14413       0.3670687E-04           0.06404
P14                                        0.64270     0.41307     0.00062     -0.24560       0.3520670E-02           0.03899
R4                                         0.64298     0.41343     0.00036      0.06134      -0.2459337              -0.02341
P3                                         0.64314     0.41363     0.00021     -0.01349      -0.5385176              -0.02352
(CONSTANT)                                                                                    -21.67510
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                        08/25/80        PAGE  545
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *  VARIABLE LIST  1
                                                                                                                      REGRESSION LIST 11

DEPENDENT VARIABLE..    C155

VARIABLE(S) ENTERED ON STEP NUMBER  6..     R3

MULTIPLE R            0.43563            ANALYSIS OF VARIANCE     DF      SUM OF SQUARES      MEAN SQUARE          F          P
R SQUARE              0.18978            REGRESSION                6.          30.77612          5.12935        3.35723    0.0051
ADJUSTED R SQUARE     0.13325            RESIDUAL                 86.         131.39516          1.52785
STANDARD ERROR        1.23606

----------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE            B            BETA      STD ERROR B        F         VARIABLE     BETA IN      PARTIAL    TOLERANCE          F

P18        0.1581469E-02       0.28647        0.00065       5.848       P1           0.02117      0.01883      0.64137        0.030
P5         0.5536718E-01       0.23419        0.02386       5.383       P2          -0.07955     -0.06322      0.51180        0.341
P9            -7.079837       -0.35181        2.59965       7.417       P3          -0.10016     -0.10207      0.84156        0.895
JUR          -0.6284517       -0.22497        0.32911       3.646       P4          -0.07591     -0.04084      0.23456        0.142
R1           -0.6071474       -0.17711        0.36494       2.768       P6           0.00445      0.00466      0.89135        0.002
R3           -0.4768009       -0.14600        0.32844       2.107       P7          -0.05979     -0.05880      0.78367        0.295
(CONSTANT)    -1.254276                                                 P8           0.06425      0.05456      0.58432        0.254
                                                                        P10          0.05869      0.04827      0.54806        0.199
                                                                        P11          0.11465      0.10981      0.74325        1.037
                                                                        P12          0.08781      0.08682      0.79209        0.646
                                                                        P13         -0.06908     -0.07350      0.91744        0.462
                                                                        P14          0.00437      0.00437      0.80692        0.002
                                                                        P15          0.00341      0.00312      0.67894        0.001
                                                                        P16          0.00734      0.00536      0.43136        0.002
                                                                        P17          0.01875      0.01531      0.53991        0.020
                                                                        P19          0.04516      0.04327      0.74368        0.159
                                                                        P20          0.13069      0.04603      0.10050        0.180
                                                                        P21         -0.01912     -0.01959      0.85025        0.033
                                                                        P22         -0.01911     -0.01958      0.85088        0.033
                                                                        P23         -0.02028     -0.02079      0.85165        0.037
                                                                        P24         -0.01946     -0.01994      0.85047        0.034
                                                                        R2           0.05348      0.05371      0.81719        0.246
                                                                        R4          -0.03378     -0.03510      0.87466        0.105
                                                                        R5           0.01813      0.01878      0.86952        0.030
                                                                        R6          -0.02005     -0.02022      0.82382        0.035
                                                                        R7          -0.02281     -0.02385      0.88535        0.048
```

```
(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=0=PUBLIC-=1=SEP                   08/25/80        PAGE  564
JUNIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)
* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                         REGRESSION LIST 11

DEPENDENT VARIABLE..    C155

                                                   SUMMARY TABLE

                                        MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA
VARIABLE

P18                                      0.22269    0.04959    0.04959     0.22269    0.1549596E-02         0.28070
P5                                       0.28254    0.07983    0.03024     0.15002    0.5312295E-01         0.22470
P9                                       0.33550    0.11256    0.03274    -0.00347   -12.15078             -0.60379
JUR                                      0.39064    0.15260    0.04004    -0.20735   -0.4899490            -0.17539
R1                                       0.41221    0.16992    0.01732    -0.13095   -0.7211817            -0.21038
R3                                       0.43563    0.18978    0.01985    -0.13552   -0.3779688            -0.11574
P11                                      0.44670    0.19955    0.00977     0.08295    0.1040902E-02         0.12730
P3                                       0.45330    0.20548    0.00593    -0.18486   -1.179557             -0.14890
R2                                       0.45720    0.20903    0.00355     0.14855    0.3640592             0.09798
P13                                      0.46361    0.21493    0.00590    -0.05725   -0.2990847E-04        -0.09257
P8                                       0.46668    0.21779    0.00286    -0.04303    0.7098889             0.03040
P2                                       0.46975    0.22066    0.00287    -0.21884   -0.7346501            -0.18599
P17                                      0.47368    0.22437    0.00371     0.07976   -0.3719162E-02        -0.89392
P10                                      0.49228    0.24234    0.01796     0.10092    0.2600511E-02         0.63264
P12                                      0.49817    0.24817    0.00584     0.07761    0.7379887E-03         0.09716
P6                                       0.50055    0.25055    0.00237    -0.03894    0.1799668E-01         0.06872
R4                                       0.50222    0.25223    0.00168     0.04027   -0.1761939            -0.04848
P16                                      0.50330    0.25331    0.00108     0.15063   -0.1492119E-02        -0.15816
P20                                      0.50453    0.25455    0.00125     0.02760    0.2975488E-02         0.36938
R7                                       0.50536    0.25538    0.00083    -0.07807   -0.2135776            -0.02512
P15                                      0.50578    0.25581    0.00043     0.05404    0.9014339E-03         0.04865
P14                                      0.50610    0.25614    0.00032    -0.10035    0.8929692E-03         0.02858
P21                                      0.50633    0.25637    0.00024    -0.06559    0.8485307E-04         0.28973
P23                                      0.50711    0.25716    0.00078    -0.05999   -0.1530155E-03        -0.28941
(CONSTANT)                                                                           -0.1353599
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                           08/25/80        PAGE  578
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  1

DEPENDENT VARIABLE..     C15

VARIABLE(S) ENTERED ON STEP NUMBER  7..     R1

                                                                                                                            F          P
MULTIPLE R             0.79329           ANALYSIS OF VARIANCE     DF        SUM OF SQUARES          MEAN SQUARE
R SQUARE               0.62930           REGRESSION                7.          12280.17905           1754.31129          20.61396    0.0000
ADJUSTED R SQUARE      0.59877           RESIDUAL                 85.           7233.76183             85.10308
STANDARD ERROR         9.22513

----------------- VARIABLES IN THE EQUATION ------------------         ------------ VARIABLES NOT IN THE EQUATION -------------

VARIABLE           B             BETA       STD ERROR B        F          VARIABLE       BETA IN       PARTIAL    TOLERANCE          F

JUR           -10.65950        -0.34787        2.38876       19.913       P1            0.04376       0.05745     0.63902         0.278
P13       -0.1758719E-02       -0.49625        0.00024       51.872       P2            0.09290       0.10675     0.48948         0.968
P3             24.83099         0.28576        6.24926       15.788       P4           -0.10186      -0.12032     0.51729         1.234
P18        0.1722452E-01        0.28443        0.00483       12.726       P6            0.03341       0.04571     0.69399         0.176
P5             0.4709332        0.18159        0.17403        7.323       P7            0.09741       0.13879     0.75242         1.650
P23        0.7030109E-03        0.12122        0.00039        3.251       P8           -0.07676      -0.09863     0.61199         0.825
R1            -4.259809        -0.11328        2.60204        2.680       P9           -0.04861      -0.05650     0.50078         0.269
(CONSTANT)   -18.89913                                                    P10          -0.01112      -0.01376     0.56825         0.016
                                                                          P11          -0.00486      -0.00736     0.84994         0.005
                                                                          P12          -0.08363      -0.12113     0.77768         1.251
                                                                          P14          -0.05753      -0.08442     0.79840         0.603
                                                                          P15           0.07410       0.09767     0.64398         0.809
                                                                          P16          -0.13442      -0.14127     0.40940         1.710
                                                                          P17           0.03549       0.04317     0.54837         0.157
                                                                          P19          -0.04276      -0.05862     0.69654         0.290
                                                                          P20          -0.07553      -0.08863     0.51038         0.665
                                                                          P21          -0.31025      -0.06104     0.01435         0.314
                                                                          P22          -0.67223      -0.08153     0.00545         0.562
                                                                          P24          -0.54500      -0.06728     0.00565         0.382
                                                                          R2            0.03189       0.04743     0.81995         0.189
                                                                          R3           -0.01216      -0.01905     0.90989         0.030
                                                                          R4            0.02322       0.03609     0.89516         0.110
                                                                          R5           -0.05998      -0.09477     0.92538         0.761
                                                                          R6            0.01372       0.02127     0.89070         0.038
                                                                          R7           -0.04347      -0.02981     0.17434         0.075
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                08/25/80      PAGE  601
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                     REGRESSION LIST   1

DEPENDENT VARIABLE..     C15

                                                    SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA

JUR                                          0.55745    0.31075    0.31075    -0.55745   -5.155387               -0.16824
P13                                          0.69653    0.48515    0.17440    -0.51674   -0.2034653E-02          -0.57411
P3                                           0.72313    0.52291    0.03776     0.06443    17.54061                0.20186
P18                                          0.75449    0.56926    0.04635     0.31693    0.9631856E-02           0.15905
P5                                           0.77543    0.60129    0.03203     0.11497    0.2380469               0.09179
P23                                          0.78588    0.61761    0.01633     0.21560    0.1139395E-01           1.96460
R1                                           0.79329    0.62930    0.01169    -0.20641   -6.441970               -0.17131
P16                                          0.79794    0.63670    0.00740     0.20872   -0.3150198E-01          -0.30440
P17                                          0.80395    0.64633    0.00963     0.12834    0.5004557E-01           1.09657
P7                                           0.82089    0.67386    0.02753     0.28941    38.65533                0.23781
P12                                          0.82840    0.68625    0.01239    -0.17367   -0.1150390E-01          -0.13806
P1                                           0.83325    0.69430    0.00805     0.32879    0.2158267E-02           0.31827
P11                                          0.83959    0.70492    0.01062     0.10817   -0.2297714E-01          -0.25616
P2                                           0.84590    0.71554    0.01063    -0.26923    16.20726                0.37406
P4                                           0.85116    0.72448    0.00893     0.21688   -0.6408815E-03          -0.29463
P8                                           0.86129    0.74182    0.01734    -0.47329    79.07974                0.30869
P22                                          0.86562    0.74931    0.00748     0.20924   -0.1601485E-01          -2.75351
P21                                          0.86830    0.75395    0.00465     0.20390    0.3136135E-02           0.97618
R5                                           0.87038    0.75757    0.00361     0.00246   -4.663068               -0.09610
P14                                          0.87298    0.76210    0.00453    -0.23810   -0.3989806E-01          -0.11642
P15                                          0.87429    0.76439    0.00229     0.14896    0.3366194E-01           0.16561
R2                                           0.87632    0.76794    0.00355    -0.04316    2.444556                0.05998
P9                                           0.87727    0.76960    0.00166     0.34066    165.6809                0.75053
P20                                          0.87963    0.77375    0.00415     0.26004   -0.8162686E-01          -0.92378
P19                                          0.88141    0.77689    0.00314    -0.37911   -0.6975035E-01          -0.56998
R7                                           0.88213    0.77815    0.00126     0.11946   -9.767636               -0.10472
P6                                           0.88279    0.77931    0.00116    -0.04428   -0.1719161              -0.05985
P10                                          0.88316    0.77996    0.00065     0.11541    0.1064017E-01           0.23597
R3                                           0.88323    0.78009    0.00012     0.06208   -0.5087431              -0.01420
(CONSTANT)                                                                               -97.95071
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  611
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  2
DEPENDENT VARIABLE..    C31

VARIABLE(S) ENTERED ON STEP NUMBER 10..    P14

MULTIPLE R            0.78018          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES        MEAN SQUARE           F           P
R SQUARE              0.60868          REGRESSION               10.         15765.45309         1576.54531       12.75448     0.0000
ADJUSTED R SQUARE     0.56095          RESIDUAL                 82.         10135.78624          123.60715
STANDARD ERROR       11.11788

---------------- VARIABLES IN THE EQUATION -----------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B            BETA      STD ERROR B        F      VARIABLE     BETA IN      PARTIAL    TOLERANCE          F

JUR             -8.926827      -0.25286       3.70213      5.814      P1           0.11161      0.12480     0.48930        1.282
P13         -0.1727519E-02     -0.42310       0.00033     27.944      P2           0.07748      0.07145     0.33281        0.416
P8              -35.12526      -0.11901      27.01568      1.690      P4          -0.07006     -0.07117     0.40382        0.412
P3               20.83259       0.20809       7.65908      7.398      P6          -0.00166     -0.00178     0.44753        0.000
P18          0.2731697E-01      0.39154       0.00713     14.662      P7           0.11839      0.11941     0.39808        1.172
P16         -0.3148115E-01     -0.26404       0.01384      5.172      P9          -0.04230     -0.04254     0.39588        0.147
P5              0.4711049       0.15768       0.21772      4.682      P10          0.06053      0 03965     0.16787        0.128
R1              -7.189122      -0.16594       3.47326      4.284      P11         -0.04986     -0.07013     0.77404        0.400
P15          0.4503070E-01      0.19229       0.02171      4.302      P12         -0.04413     -0.06103     0.74833        0.303
P14         -0.5948234E-01     -0.15065       0.03287      3.275      P17          0.14251      0.09616     0.17816        0.756
(CONSTANT)      -20.82462                                             P19          0.24516      0.07545     0.03707        0.464
                                                                      P20         -0.06381     -0.05738     0.31652        0.268
                                                                      P21          0.06624      0.09906     0.87528        0.803
                                                                      P22          0.07111      0.10648     0.87749        0.929
                                                                      P23          0.07465      0.11128     0.86965        1.016
                                                                      P24          0.06982      0.10437     0.87446        0.892
                                                                      R2          -0.03610     -0.05047     0.76489        0.207
                                                                      R3           0.02028      0.03055     0.88842        0.076
                                                                      R4           0.02020      0.03053     0.89382        0.076
                                                                      R5          -0.08535     -0.12638     0.85807        1.315
                                                                      R6           0.02882      0.04296     0.86910        0.150
                                                                      R7           0.05469      0.08289     0.89872        0.560
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  631
SENIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  2

DEPENDENT VARIABLE..     C31

                                                             SUMMARY TABLE

VARIABLE                                        MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                  BETA

JUR                                              0.53584    0.28713   0.28713    -0.53584    -4.482189             -0.12696
P13                                              0.62564    0.39143   0.10430    -0.41970    -0.1839419E-02        -0.45050
P8                                               0.66833    0.44666   0.05523    -0.49743     47.64613              0.16143
P3                                               0.68827    0.47372   0.02706     0.03184     19.78289              0.19761
P18                                              0.70561    0.49788   0.02416     0.33143     0.1713003E-01         0.24553
P16                                              0.73450    0.53949   0.04161     0.17265    -0.2975665E-01        -0.24958
P5                                               0.75028    0.56292   0.02343     0.15464     0.3101430             0.10380
R1                                               0.75961    0.57701   0.01409    -0.27678    -9.779386             -0.22573
P15                                              0.77010    0.59305   0.01604     0.12975     0.4150321E-01         0.17723
P14                                              0.78018    0.60868   0.01563    -0.33414    -0.8681239E-01        -0.21986
R5                                               0.78417    0.61493   0.00625     0.02055    -5.321914             -0.09520
P1                                               0.78911    0.62270   0.00777     0.32145     0.2127923E-02         0.27237
P2                                               0.79963    0.63940   0.01671    -0.24727     18.50940              0.37079
P7                                               0.80661    0.65061   0.01121     0.30462     29.66838              0.15842
P17                                              0.81202    0.65938   0.00876     0.07844     0.4024821E-01         0.76547
P11                                              0.82250    0.67651   0.01713     0.07156    -0.2313261E-01        -0.22385
P4                                               0.82523    0.68101   0.00450     0.24285    -0.5867397E-03        -0.23413
P23                                              0.82780    0.68525   0.00425     0.24227     0.8447909E-02         1.26433
P22                                              0.83147    0.69134   0.00609     0.23395    -0.3006460E-02        -0.44867
P12                                              0.83322    0.69426   0.00292    -0.14546    -0.7469073E-02        -0.07781
R7                                               0.83416    0.69582   0.00156     0.14550    -15.59503             -0.14512
P9                                               0.83472    0.69675   0.00093     0.36410     185.7688              0.73043
P20                                              0.83753    0.70145   0.00470     0.26092    -0.9949938E-01        -0.97739
P19                                              0.83811    0.70242   0.00097    -0.40896    -0.6003775E-01        -0.42585
P10                                              0.83873    0.70346   0.00104     0.07333     0.1946711E-01         0.37474
R2                                               0.83927    0.70437   0.00091    -0.10332    -2.022482             -0.04307
P6                                               0.83991    0.70545   0.00108    -0.08198    -0.1761184            -0.05322
P21                                              0.84017    0.70589   0.00044     0.22567    -0.2220491E-02        -0.59992
R6                                               0.84030    0.70610   0.00021     0.16134     0.7629854             0.01761
(CONSTANT)                                                                                   -100.7067
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80         PAGE  641
SENIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  3

DEPENDENT VARIABLE..     C47

VARIABLE(S) ENTERED ON STEP NUMBER 10..     R5


MULTIPLE R              0.81618             ANALYSIS OF VARIANCE     DF         SUM OF SQUARES          MEAN SQUARE              F            P
R SQUARE                0.66616             REGRESSION               10.            9906.63565            990.66356       16.36232       0.0000
ADJUSTED R SQUARE       0.62544             RESIDUAL                 82.            4964.72321             60.54541
STANDARD ERROR          7.78109


---------------- VARIABLES IN THE EQUATION ------------------           ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B            BETA       STD ERROR B          F        VARIABLE        BETA IN       PARTIAL      TOLERANCE          F

JUR              -4.895200        -0.18300        2.30844       4.497        P1              0.06325       0.08511        0.60436       0.591
P13            -0.1428467E-02     -0.46171        0.00022      41.796        P2              0.12446       0.14965        0.48266       1.856
P5               0.5574553         0.24623        0.14802      14.183        P4             -0.10652      -0.12295        0.44477       1.243
P18              0.1281639E-01     0.24244        0.00484       7.006        P6              0.00238       0.00302        0.53896       0.001
P3                18.18305         0.23970        5.32644      11.654        P8             -0.02160      -0.02804        0.56238       0.064
P23              0.8429898E-03     0.16650        0.00033       6.444        P9             -0.06701      -0.07887        0.46247       0.507
R1               -7.929671        -0.24156        2.37637      11.135        P10            -0.01423      -0.01104        0.20084       0.010
P15              0.5304336E-01     0.29893        0.01809       8.597        P11             0.00335       0.00478        0.67956       0.002
P7                28.61531         0.20166       13.07028       4.793        P12            -0.07139      -0.10439        0.71389       0.892
R5               -4.714554        -0.11130        2.89435       2.653        P14            -0.10456      -0.14253        0.62032       1.680
(CONSTANT)       -46.86536                                                   P16            -0.15575      -0.15848        0.34563       2.087
                                                                             P17             0.02823       0.02304        0.22234       0.043
                                                                             P19             0.01358       0.01709        0.52853       0.024
                                                                             P20            -0.11025      -0.11881        0.38770       1.160
                                                                             P21             0.13468       0.02783        0.01426       0.063
                                                                             P22             0.01469       0.00186        0.00537       0.000
                                                                             P24             0.16618       0.02157        0.00562       0.038
                                                                             R2             -0.00714      -0.01075        0.75748       0.009
                                                                             R3              0.02412       0.03881        0.86430       0.122
                                                                             R4             -0.00906      -0.01438        0.84096       0.017
                                                                             R6             -0.00233      -0.00370        0.84270       0.001
                                                                             R7             -0.13649      -0.09716        0.16917       0.772
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                              08/25/80        PAGE  661
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  3

DEPENDENT VARIABLE..    C47

                                                  SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                   BETA

JUR                                        0.54333    0.29521   0.29521    -0.54333     -1.926069               -0.07200
P13                                        0.63761    0.40655   0.11134    -0.43165     -0.1587992E-02          -0.51327
P5                                         0.67332    0.45336   0.04681     0.18636      0.3403989               0.15036
P18                                        0.71017    0.50435   0.05098     0.37443      0.1439341E-01           0.27227
P3                                         0.74626    0.55691   0.05256     0.01794      14.29291                0.18842
P23                                        0.77283    0.59726   0.04036     0.28305      0.8901666E-02           1.75820
R1                                         0.79092    0.62555   0.02829    -0.27670     -8.573954               -0.26118
P15                                        0.79860    0.63776   0.01221     0.19714      0.3541867E-01           0.19961
P7                                         0.80954    0.65535   0.01759     0.26508      28.01826                0.19745
R5                                         0.81618    0.66616   0.01080    -0.00100     -4.875226               -0.11509
P16                                        0.82130    0.67454   0.00838     0.22937     -0.1056888E-01          -0.11699
P1                                         0.82602    0.68231   0.00777     0.30009      0.1532692E-02           0.25890
P2                                         0.83852    0.70312   0.02081    -0.24552      15.93457                0.42127
P17                                        0.84155    0.70820   0.00509     0.15609      0.2515098E-01           0.63128
P14                                        0.84581    0.71539   0.00719    -0.27908     -0.5739946E-01          -0.19185
P11                                        0.85283    0.72731   0.01192     0.12934     -0.1504569E-01          -0.19215
P12                                        0.85742    0.73517   0.00786    -0.16294     -0.9147330E-02          -0.12576
P4                                         0.86070    0.74081   0.00564     0.27325     -0.4240317E-03          -0.22330
P8                                         0.86290    0.74460   0.00379    -0.46168      28.51511                0.12750
R7                                         0.86419    0.74682   0.00221     0.18107     -10.04064               -0.12331
P6                                         0.86539    0.74891   0.00209    -0.05155     -0.2346833              -0.09358
P22                                        0.86586    0.74971   0.00080     0.27746     -0.1512750E-01          -2.97940
P21                                        0.86805    0.75350   0.00379     0.27506      0.4169183E-02           1.48656
P19                                        0.86835    0.75404   0.00053    -0.34887     -0.3490160E-01          -0.32671
P9                                         0.86861    0.75448   0.00044     0.39011      156.9139                0.81424
P20                                        0.87196    0.76032   0.00584     0.31043     -0.8854104E-01          -1.14783
P10                                        0.87425    0.76431   0.00399     0.15827      0.2264867E-01           0.57538
R3                                         0.87435    0.76448   0.00018     0.10403      0.3729123               0.01192
R2                                         0.87440    0.76457   0.00009    -0.09157     -0.4683070              -0.01316
(CONSTANT)                                                                               -91.51290
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                         08/25/80       PAGE  668
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST  4

DEPENDENT VARIABLE..     C63

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P23

MULTIPLE R           0.83969            ANALYSIS OF VARIANCE    DF      SUM OF SQUARES        MEAN SQUARE              F           P
R SQUARE             0.70509            REGRESSION               7.        15367.31391         2195.33056        29.03144      0.0000
ADJUSTED R SQUARE    0.68080            RESIDUAL                85.         6427.62149           75.61908
STANDARD ERROR       8.69592

----------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B           BETA     STD ERROR B        F       VARIABLE     BETA IN     PARTIAL    TOLERANCE          F

JUR          -9.413129        -0.29067       2.25173      17.476     P1           0.08523     0.12545      0.63902      1.343
P13          -0.1958635E-02   -0.52294       0.00023      72.404     P2           0.06726     0.08665      0.48948      0.636
P18           0.2513864E-01    0.38280       0.00455      30.508     P4          -0.07728    -0.10235      0.51729      0.889
P3            22.47128         0.24469       5.89076      14.552     P6          -0.00717    -0.01100      0.69399      0.010
P5            0.5434487        0.19828       0.16404      10.975     P7           0.07862     0.12558      0.75242      1.346
R1           -7.466850        -0.18789       2.45278       9.267     P8          -0.10083    -0.14524      0.61199      1.810
P23           0.6483147E-03    0.10577       0.00037       3.112     P9          -0.05357    -0.06981      0.50078      0.411
(CONSTANT)   -26.73765                                               P10         -0.02689    -0.03732      0.56825      0.117
                                                                     P11         -0.05966    -0.10128      0.84994      0.871
                                                                     P12         -0.03826    -0.06212      0.77768      0.325
                                                                     P14         -0.07254    -0.11936      0.79840      1.214
                                                                     P15          0.04058     0.05997      0.64398      0.303
                                                                     P16         -0.10142    -0.11950      0.40940      1.217
                                                                     P17          0.00768     0.01048      0.54837      0.009
                                                                     P19         -0.06883    -0.10578      0.69654      0.950
                                                                     P20         -0.07780    -0.10235      0.51038      0.889
                                                                     P21         -0.26855    -0.05924      0.01435      0.296
                                                                     P22         -0.36824    -0.05007      0.00545      0.211
                                                                     P24         -0.41757    -0.05779      0.00565      0.281
                                                                     R2          -0.01887    -0.03146      0.81995      0.083
                                                                     R3           0.03149     0.05531      0.90989      0.258
                                                                     R4           0.00735     0.01280      0.89516      0.014
                                                                     R5          -0.04843    -0.08578      0.92538      0.623
                                                                     R6           0.01931     0.03355      0.89070      0.095
                                                                     R7          -0.08839    -0.06796      0.17434      0.390
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                       08/25/80        PAGE  692
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST  4

DEPENDENT VARIABLE..     C63

                                                  SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R         B                    BETA

JUR                                        0.57705    0.33299    0.33299    -0.57705     -3.200568               -0.09883
P13                                        0.71568    0.51220    0.17922    -0.52612     -0.2229055E-02          -0.59514
P18                                        0.75815    0.57479    0.06258     0.42817      0.2115183E-01           0.33051
P3                                         0.78891    0.62238    0.04759    -0.01447      19.18620                0.20892
P5                                         0.81178    0.65899    0.03662     0.11278      0.3548715               0.12948
R1                                         0.83324    0.69429    0.03530    -0.28668     -10.41081               -0.26197
P23                                        0.83969    0.70509    0.01080     0.20188      0.5645852E-02           0.92113
P8                                         0.84339    0.71131    0.00622    -0.54572      93.01204                0.34355
P4                                         0.84773    0.71864    0.00733     0.29659     -0.5531579E-03           0.24063
P15                                        0.85179    0.72555    0.00691     0.12408      0.3133750E-01           0.14588
P2                                         0.85493    0.73091    0.00536    -0.32330      17.32961                0.37845
P1                                         0.86685    0.75144    0.02053     0.38171      0.2134732E-02           0.29787
P7                                         0.87173    0.75991    0.00848     0.33214      22.31747                0.12991
P17                                        0.87765    0.77027    0.01036     0.15593      0.4438380E-01           0.92021
P11                                        0.88553    0.78417    0.01390     0.07925     -0.2802055E-01          -0.29559
P16                                        0.89371    0.79873    0.01456     0.28918     -0.2755995E-01          -0.25199
R5                                         0.89704    0.80468    0.00595     0.04327     -6.709726               -0.13084
P14                                        0.90082    0.81147    0.00680    -0.23723     -0.5826042E-01          -0.16085
P22                                        0.90218    0.81393    0.00246     0.19518     -0.2378948E-02          -0.38703
R7                                         0.90344    0.81620    0.00227     0.10340     -17.50480               -0.17758
R4                                         0.90450    0.81812    0.00192     0.02850     -2.129755               -0.05055
P6                                         0.90541    0.81976    0.00164     0.12505     -0.2327146              -0.07666
P12                                        0.90612    0.82105    0.00129    -0.10110     -0.3638173E-02          -0.04132
P19                                        0.90656    0.82185    0.00080    -0.44469     -0.8653263E-01          -0.66910
R6                                         0.90685    0.82237    0.00052     0.15333     -1.124414               -0.02829
P20                                        0.90705    0.82275    0.00038     0.32155     -0.9756354E-01          -1.04476
P9                                         0.91036    0.82876    0.00602     0.39344      171.4212                0.73478
P10                                        0.91153    0.83089    0.00213     0.14679      0.2079009E-01           0.43628
R2                                         0.91165    0.83111    0.00022    -0.09260     -0.9968838              -0.02314
P21                                        0.91172    0.83123    0.00011     0.18699     -0.1043362E-02          -0.30730
(CONSTANT)                                                                              -109.1636
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                         08/25/80        PAGE  702
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST  5

DEPENDENT VARIABLE..     C79

VARIABLE(S) ENTERED ON STEP NUMBER 10..     R1

MULTIPLE R            0.74206           ANALYSIS OF VARIANCE     DF       SUM OF SQUARES        MEAN SQUARE             F           P
R SQUARE              0.55066           REGRESSION               10.          2337.31645          233.73165        10.04879     0.0000
ADJUSTED R SQUARE     0.49586           RESIDUAL                 82.          1907.29382           23.25968
STANDARD ERROR        4.82283

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B              BETA      STD ERROR B        F      VARIABLE        BETA IN       PARTIAL    TOLERANCE          F

JUR             -5.949702         -0.41632       1.50067       15.719    P4             -0.12374      -0.13127      0.50567       1.420
P13             -0.4249343E-03    -0.25709       0.00013       10.427    P6              0.05704       0.06861      0.65024       0.383
P5               0.1864634         0.15416       0.09304        4.016    P7              0.04086       0.05241      0.73938       0.223
P18              0.5566401E-02     0.19709       0.00269        4.293    P8              0.03620       0.04151      0.59084       0.140
P3               8.019030          0.19787       3.39430        5.581    P9             -0.13518      -0.14180      0.49449       1.662
P23              0.5795991E-02     2.14279       0.00306        3.587    P10             0.03695       0.04043      0.53800       0.133
P1               0.1261798E-02     0.39896       0.00044        8.307    P11            -0.06362      -0.08585      0.81827       0.601
P22             -0.5547114E-02    -2.04496       0.00306        3.292    P12            -0.00557      -0.00716      0.74189       0.004
P2               5.456435          0.27002       3.07139        3.156    P14            -0.01965      -0.02532      0.74629       0.052
R1              -1.950976         -0.11124       1.37888        2.002    P15             0.09924       0.11429      0.59602       1.072
(CONSTANT)      -9.072054                                                P16            -0.01779      -0.01467      0.30558       0.017
                                                                         P17             0.07505       0.08056      0.51780       0.529
                                                                         P19             0.05652       0.06922      0.67402       0.390
                                                                         P20            -0.10267      -0.10790      0.49634       0.954
                                                                         P21             0.94408       0.05778      0.00168       0.271
                                                                         P24             1.98683       0.05782      0.00038       0.272
                                                                         R2             -0.07065      -0.09492      0.81122       0.736
                                                                         R3              0.06410       0.08994      0.88477       0.661
                                                                         R4             -0.03351      -0.04659      0.86865       0.176
                                                                         R5             -0.06113      -0.08697      0.90940       0.617
                                                                         R6              0.07380       0.10104      0.84229       0.835
                                                                         R7              0.01132       0.00687      0.16567       0.004
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                     08/25/80        PAGE  720
SENIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  5
DEPENDENT VARIABLE..     C79

                                                       SUMMARY TABLE

VARIABLE                                     MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R         B                   BETA

JUR                                            0.58529    0.34256   0.34256    -0.58529     -4.343772            -0.30395
P13                                            0.62934    0.39607   0.05351    -0.33925    -0.5252225E-03        -0.31776
P5                                             0.65146    0.42440   0.02833     0.14877     0.1740341             0.14389
P18                                            0.66803    0.44626   0.02186     0.34022     0.3303875E-02         0.11698
P3                                             0.69164    0.47836   0.03210    -0.00722      9.394312             0.23180
P23                                            0.70161    0.49225   0.01389     0.20818     0.6277412E-02         2.32078
P1                                             0.70881    0.50241   0.01016     0.40795     0.1395258E-02         0.44116
P22                                            0.72333    0.52321   0.02080     0.20162    -0.5813565E-02        -2.14319
P2                                             0.73463    0.53968   0.01647    -0.32768      6.590063             0.32611
R1                                             0.74206    0.55066   0.01097    -0.20800     -4.231808            -0.24129
P9                                             0.74812    0.55969   0.00904     0.32266      18.02963             0.17512
P15                                            0.75484    0.56978   0.01009     0.19626     0.1117659E-01         0.11790
P7                                             0.76024    0.57796   0.00818     0.21497      11.85408             0.15636
P17                                            0.76627    0.58718   0.00922     0.17580     0.1846966E-01         0.86772
P11                                            0.77085    0.59421   0.00703     0.06997    -0.9451638E-02        -0.22594
P4                                             0.77652    0.60298   0.00877     0.22800    -0.2346950E-03        -0.23134
P16                                            0.78051    0.60919   0.00621     0.26570    -0.1081600E-01        -0.22410
R5                                             0.78356    0.61396   0.00477     0.02527     -3.063208            -0.13535
P14                                            0.78643    0.61848   0.00452    -0.24162    -0.2187192E-01        -0.13684
P6                                             0.78951    0.62333   0.00485    -0.08150    -0.1534401            -0.11453
R2                                             0.79301    0.62887   0.00554    -0.11321     -2.534219            -0.13332
R4                                             0.79732    0.63572   0.00685    -0.01230     -1.874923            -0.10084
P19                                            0.79922    0.63876   0.00304    -0.28696    -0.1592506E-01        -0.27903
P20                                            0.79988    0.63980   0.00104     0.26577    -0.1585367E-01        -0.38470
R7                                             0.80051    0.64082   0.00102     0.11628     -3.630205            -0.08345
P8                                             0.80066    0.64106   0.00024    -0.39034      16.52999             0.13835
P10                                            0.80072    0.64115   0.00009     0.17000     0.1786302E-02         0.08494
(CONSTANT)                                                                                 -33.63035
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                           08/25/80        PAGE  726
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  6

DEPENDENT VARIABLE..    C95

VARIABLE(S) ENTERED ON STEP NUMBER  6..    P18

MULTIPLE R            0.65525          ANALYSIS OF VARIANCE     DF      SUM OF SQUARES      MEAN SQUARE          F          P
R SQUARE              0.42935          REGRESSION               6.         14179.10951       2363.18492     10.78418     0.0000
ADJUSTED R SQUARE     0.38954          RESIDUAL                86.         18845.55924        219.13441
STANDARD ERROR       14.80319

---------------- VARIABLES IN THE EQUATION -----------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B      F      VARIABLE     BETA IN      PARTIAL    TOLERANCE         F

P23            0.2518915E-02     0.33386       0.00064     15.390    P1           0.05282      0.05321     0.57898         0.241
JUR             -17.51301       -0.43933       4.16713     17.662    P2           0.04251      0.03382     0.36111         0.097
P16           -0.5565498E-01    -0.41340       0.01674     11.053    P3           0.04587      0.05504     0.82170         0.258
P8              -45.10427       -0.13534      31.41747      2.061    P4           0.10298      0.09191     0.45457         0.724
R6                5.514046       0.11272       4.09640      1.812    P5           0.09631      0.12281     0.92782         1.302
P18            0.1185451E-01     0.15048       0.00920      1.661    P6           0.02371      0.02793     0.79152         0.066
(CONSTANT)       17.99741                                            P7           0.01541      0.01632     0.64000         0.023
                                                                     P9           0.06854      0.05961     0.43157         0.303
                                                                     P10          0.08342      0.06412     0.33713         0.351
                                                                     P11         -0.03677     -0.04548     0.87286         0.176
                                                                     P12          0.01278      0.01585     0.87763         0.021
                                                                     P13         -0.03270     -0.04082     0.88953         0.142
                                                                     P14         -0.00984     -0.01096     0.70757         0.010
                                                                     P15          0.06978      0.07246     0.61527         0.449
                                                                     P17          0.03780      0.02916     0.33960         0.072
                                                                     P19          0.19302      0.06809     0.07101         0.396
                                                                     P20          0.06494      0.05364     0.38934         0.245
                                                                     P21         -0.62327     -0.10193     0.01526         0.892
                                                                     P22         -1.01322     -0.10048     0.00561         0.867
                                                                     P24         -1.00633     -0.10300     0.00598         0.911
                                                                     R1           0.01169      0.01395     0.81323         0.017
                                                                     R2          -0.08677     -0.11174     0.94623         1.075
                                                                     R3           0.10367      0.13122     0.91425         1.489
                                                                     R4          -0.01246     -0.01585     0.92235         0.021
                                                                     R5          -0.03122     -0.03904     0.89221         0.130
                                                                     R7          -0.01173     -0.00645     0.17254         0.004
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                      08/25/80        PAGE  748
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  6

DEPENDENT VARIABLE..     C95

                                                       SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                  BETA

P23                                        0.44991    0.20242    0.20242     0.44991     0.1279808E-01          1.69628
JUR                                        0.55961    0.31316    0.11074    -0.39699     -12.65207             -0.31739
P16                                        0.61304    0.37581    0.06265    -0.06150    -0.6076783E-01         -0.45138
P8                                         0.63521    0.40349    0.02768    -0.31642     -100.4931             -0.30154
R6                                         0.64678    0.41833    0.01484     0.15952      6.673676              0.13642
P18                                        0.65525    0.42935    0.01102     0.12296     0.3618924E-03          0.00459
R3                                         0.66270    0.43918    0.00983     0.08829      6.015473              0.12908
P5                                         0.66934    0.44801    0.00884     0.18803     0.3771764              0.11180
P24                                        0.67497    0.45559    0.00757     0.43904    -0.2680857E-02         -1.34911
P19                                        0.67893    0.46095    0.00536    -0.26786     0.2908744E-01          0.18272
P1                                         0.68294    0.46641    0.00546     0.11993     0.1864132E-02          0.21131
P4                                         0.68632    0.47103    0.00463     0.26180     0.6233627E-03          0.22029
P7                                         0.69066    0.47700    0.00597     0.13246      32.54844              0.15392
P3                                         0.69282    0.48000    0.00300     0.01423      11.19103              0.09900
P12                                        0.69549    0.48371    0.00371    -0.01618     0.1174910E-01          0.10839
P9                                         0.69853    0.48794    0.00423     0.34647     -10.96616             -0.03819
P15                                        0.70038    0.49053    0.00259     0.10700     0.3170170E-01          0.11989
P2                                         0.70182    0.49255    0.00202    -0.03049      6.517488              0.11563
R5                                         0.70307    0.49431    0.00177    -0.05541     -4.395352             -0.06963
P13                                        0.70442    0.49621    0.00190    -0.15582    -0.3194403E-03         -0.06929
P11                                        0.70536    0.49753    0.00132     0.05243    -0.6914027E-02         -0.05925
P10                                        0.70658    0.49926    0.00172    -0.01149     0.2793532E-01          0.47623
P17                                        0.70811    0.50141    0.00216    -0.02593    -0.1444548E-01         -0.24331
P14                                        0.70862    0.50214    0.00073    -0.29315    -0.2225707E-01         -0.04992
P6                                         0.70881    0.50242    0.00027    -0.11646    -0.1145902             -0.03066
R7                                         0.70903    0.50272    0.00030     0.33827     -5.884877             -0.04850
P20                                        0.70919    0.50294    0.00022     0.21386    -0.1946027E-01         -0.16929
(CONSTANT)                                                                              -50.65176
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  757
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)
* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  7
DEPENDENT VARIABLE..    C111

VARIABLE(S) ENTERED ON STEP NUMBER  9..    P11

MULTIPLE R           0.65179          ANALYSIS OF VARIANCE     DF      SUM OF SQUARES      MEAN SQUARE          F          P
R SQUARE             0.42483          REGRESSION               9.        5229.15059        581.01673       6.81172    0.0000
ADJUSTED R SQUARE    0.36246          RESIDUAL                83.        7079.61880         85.29661
STANDARD ERROR       9.23562

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE            B           BETA      STD ERROR B        F           VARIABLE      BETA IN       PARTIAL     TOLERANCE          F

P23         0.1321467E-01     2.86893        0.00556      5.647          P1            0.01134       0.00805      0.28980        0.005
JUR          -8.374295       -0.34410        2.79920      8.950          P4           -0.06210      -0.06456      0.62174        0.343
P7           32.67446         0.25310       11.75810      7.722          P6           -0.00559      -0.00593      0.64594        0.003
P2            2.171728        0.06311        4.27493      0.258          P8           -0.04821      -0.05153      0.65720        0.218
P5           0.2605489        0.12650        0.17446      2.231          P9           -0.03795      -0.03662      0.53552        0.110
R3            4.891019        0.17191        2.46656      3.932          P10          -0.02081      -0.01777      0.41909        0.026
P22        -0.1163730E-01    -2.51931        0.00555      4.397          P12          -0.06318      -0.06906      0.68726        0.393
P3           10.77525         0.15613        6.50805      2.741          P13          -0.05252      -0.06477      0.87500        0.345
P11         0.8570068E-02     0.12030        0.00686      1.559          P14          -0.08011      -0.09009      0.72739        0.671
(CONSTANT)  -31.99514                                                    P15           0.00175       0.00161      0.49076        0.000
                                                                         P16          -0.07899      -0.06493      0.38862        0.347
                                                                         P17           0.01087       0.00900      0.39408        0.007
                                                                         P18          -0.00032      -0.00030      0.50598        0.000
                                                                         P19          -0.02653      -0.02819      0.64964        0.065
                                                                         P20          -0.05234      -0.05114      0.54906        0.215
                                                                         P21           0.38278       0.02236      0.00196        0.041
                                                                         P24           0.80524       0.02237      0.00044        0.041
                                                                         R1           -0.01639      -0.01979      0.83875        0.032
                                                                         R2           -0.00389      -0.00473      0.84901        0.002
                                                                         R4            0.08388       0.10311      0.86901        0.881
                                                                         R5           -0.09063      -0.11421      0.91352        1.084
                                                                         R6            0.02917       0.03521      0.83811        0.102
                                                                         R7           -0.18729      -0.10044      0.16540        0.836
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                08/25/80        PAGE  778
SENIOR HIGH ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                            REGRESSION LIST  7

DEPENDENT VARIABLE..    C111

                                                   SUMMARY TABLE

VARIABLE                                 MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                BETA

P23                                       0.42167    0.17781   0.17781     0.42167     0.1278321E-01        2.77526
JUR                                       0.51281    0.26298   0.08517    -0.35225    -3.061658            -0.12580
P7                                        0.56262    0.31654   0.05357     0.22946    21.86406              0.16936
P2                                        0.58740    0.34504   0.02850    -0.04490     2.261514             0.06572
P5                                        0.60301    0.36362   0.01858     0.17209     0.1543040            0.07492
R3                                        0.61805    0.38198   0.01836     0.15968     2.897367             0.10184
P22                                       0.63302    0.40072   0.01873     0.40833    -0.7484249E-02       -1.62023
P3                                        0.64345    0.41403   0.01331     0.04490    13.66349              0.19798
P11                                       0.65179    0.42483   0.01080     0.09240    -0.4493793E-02       -0.06308
R5                                        0.65752    0.43233   0.00750    -0.12360    -5.537820            -0.14370
R7                                        0.66221    0.43852   0.00619     0.30715   -22.11952             -0.29859
P14                                       0.66622    0.44385   0.00533    -0.30958    -0.5780642E-01       -0.21237
P17                                       0.67096    0.45019   0.00634    -0.00491     0.2856143E-01        0.78798
P13                                       0.67727    0.45870   0.00851    -0.19554    -0.4046333E-03       -0.14376
P16                                       0.68305    0.46655   0.00786    -0.01595    -0.1894297E-01       -0.23048
P6                                        0.68830    0.47375   0.00720    -0.09197    -0.2935740           -0.12868
P12                                       0.69150    0.47817   0.00442    -0.13204    -0.6427012E-02       -0.09712
R1                                        0.69306    0.48034   0.00216    -0.19726    -2.421927            -0.08109
P4                                        0.69464    0.48253   0.00219     0.18787    -0.3319548E-03       -0.19215
P8                                        0.69662    0.48528   0.00275    -0.29996    52.91185              0.26006
R2                                        0.69746    0.48644   0.00116    -0.06575    -2.386642            -0.07373
P18                                       0.69795    0.48713   0.00069     0.16427     0.6104092E-02        0.12692
P10                                       0.69839    0.48774   0.00061    -0.00923     0.6143034E-02        0.17154
P9                                        0.69914    0.48880   0.00106     0.30389    98.98559              0.56459
P20                                       0.70027    0.49038   0.00158     0.19314    -0.5019863E-01       -0.71531
P19                                       0.70160    0.49224   0.00186    -0.26733    -0.3902649E-01       -0.40155
R6                                        0.70201    0.49282   0.00057     0.04166    -1.019851            -0.03415
P1                                        0.70227    0.49318   0.00037     0.06704    -0.3289718E-03       -0.06108
P21                                       0.70259    0.49364   0.00046     0.39929    -0.1489494E-02       -0.58376
(CONSTANT)                                                                          -56.93586
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                                 08/25/80        PAGE  789
SENIOR HIGH ONLY
FILE    NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  8

DEPENDENT VARIABLE..    C120

VARIABLE(S) ENTERED ON STEP NUMBER 11..    P14

MULTIPLE R             0.77662          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE               0.60314          REGRESSION              11.          29215.30696        2655.93700       11.19100    0.0000
ADJUSTED R SQUARE      0.54924          RESIDUAL                81.          19223.56028         237.32790
STANDARD ERROR        15.40545

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B             BETA     STD ERROR B        F         VARIABLE     BETA IN      PARTIAL    TOLERANCE          F

JUR            -19.98479       -0.41395       5.14640     15.080         P1           0.17708      0.14958      0.28316       1.831
P23            0.1774465E-01    1.94197       0.00928      3.653         P4          -0.04309     -0.04366      0.40736       0.153
P8             -359.0869       -0.88967     113.83882      9.950         P6          -0.00894     -0.00937      0.43572       0.007
P5             0.5939946        0.14538       0.30290      3.846         P9           0.02446      0.02312      0.35459       0.043
P13           -0.1067595E-02   -0.19120       0.00043      6.102         P10          0.00955      0.00716      0.22335       0.004
P3              18.48773        0.13504      10.63680      3.021         P11         -0.03857     -0.04898      0.64015       0.192
P22           -0.1589527E-01   -1.73463       0.00928      2.936         P12         -0.03758     -0.05050      0.71676       0.205
P7              57.18486        0.22329      23.51721      5.913         P15          0.06347      0.05711      0.32133       0.262
P19            0.1493916        0.77485       0.05596      7.128         P16         -0.03766     -0.03150      0.27762       0.079
P2              12.42212        0.18197       7.26831      2.921         P17         -0.00724     -0.00525      0.20913       0.002
P14           -0.7248686E-01   -0.13424       0.04645      2.435         P18         -0.01838     -0.01478      0.25644       0.017
(CONSTANT)     -17.32967                                                 P20         -0.00959     -0.00893      0.34375       0.006
                                                                         P21         -0.12470     -0.00862      0.00190       0.006
                                                                         P24         -0.26148     -0.00859      0.00043       0.006
                                                                         R1          -0.07625     -0.10541      0.75838       0.899
                                                                         R2           0.01074      0.01556      0.83201       0.019
                                                                         R3           0.05355      0.08170      0.92355       0.538
                                                                         R4           0.03973      0.05997      0.90421       0.289
                                                                         R5          -0.04330     -0.06554      0.90908       0.345
                                                                         R6          -0.00303     -0.00449      0.86897       0.002
                                                                         R7          -0.05703     -0.03676      0.16483       0.108
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE  806
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  8
DEPENDENT VARIABLE..    C120

                                                      SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                   BETA

JUR                                            0.54886    0.30124    0.30124    -0.54886    -12.02658              -0.24911
P23                                            0.61724    0.38099    0.07975     0.36215    0.2001128E-01           2.19003
P8                                             0.66695    0.44482    0.06383    -0.47816    -78.77808              -0.19518
P5                                             0.68881    0.47446    0.02964     0.21165    0.4169472               0.10204
P13                                            0.71058    0.50493    0.03047    -0.30829    -0.1511499E-02         -0.27070
P3                                             0.72355    0.52352    0.01859     0.01760     16.86903               0.12322
P22                                            0.73904    0.54617    0.02265     0.35124    -0.1755087E-01         -1.91531
P7                                             0.74778    0.55917    0.01300     0.23240     58.27690               0.22756
P19                                            0.76103    0.57917    0.02000    -0.39042    -0.4079066E-02         -0.02116
P2                                             0.76890    0.59121    0.01204    -0.17683     28.25714               0.41393
P14                                            0.77662    0.60314    0.01193    -0.35183    -0.8291703E-01         -0.15356
P1                                             0.78232    0.61202    0.00888     0.25207    0.2706422E-02           0.25331
R1                                             0.78701    0.61938    0.00737    -0.24823    -8.984026              -0.15164
P15                                            0.79137    0.62627    0.00688     0.17880    0.6261411E-01           0.19552
R5                                             0.79593    0.63350    0.00723    -0.00980    -8.277518              -0.10827
R6                                             0.79684    0.63496    0.00146     0.11353    -1.948315              -0.03289
R7                                             0.79748    0.63597    0.00101     0.25173    -16.00257              -0.10889
P4                                             0.79810    0.63697    0.00099     0.28891    -0.5804221E-03         -0.16936
P9                                             0.79957    0.63932    0.00235     0.43598     224.6308               0.64586
P11                                            0.80057    0.64091    0.00159     0.11295    -0.1736092E-01         -0.12285
P17                                            0.80188    0.64302    0.00211     0.07414    0.1253576E-01           0.17434
P20                                            0.80347    0.64556    0.00255     0.31541    -0.1045105             -0.75071
P10                                            0.80557    0.64894    0.00338     0.08462    0.3545554E-01           0.49908
P16                                            0.80580    0.64931    0.00036     0.13005    -0.1309990E-01         -0.08034
P6                                             0.80600    0.64963    0.00032    -0.10196    -0.1449441             -0.03203
P18                                            0.80618    0.64993    0.00030     0.26561    0.4193580E-02           0.04395
P12                                            0.80637    0.65023    0.00030    -0.11204    -0.3012359E-02         -0.02295
(CONSTANT)                                                                                  -103.8009
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80        PAGE  815
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  9
DEPENDENT VARIABLE..    C129

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P2


MULTIPLE R            0.66912          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES        MEAN SQUARE             F          P
R SQUARE              0.44772          REGRESSION                 9.        5962.81178          662.53464          7.47627     0.0000
ADJUSTED R SQUARE     0.38784          RESIDUAL                  83.        7355.32472           88.61837
STANDARD ERROR        9.41373


----------------- VARIABLES IN THE EQUATION ------------------         ------------ VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B              BETA      STD ERROR B        F         VARIABLE       BETA IN      PARTIAL   TOLERANCE          F

JUR            -10.53152          -0.41602        2.86536     13.509         P4             0.10308      0.10891     0.61647      0.984
P23            0.6980575E-02       1.45694        0.00331      4.460         P5            -0.02071     -0.02652     0.90575      0.058
P14           -0.3442197E-01      -0.12158        0.02500      1.895         P6            -0.00307     -0.00347     0.70582      0.001
R6               5.304493          0.17075        2.71797      3.809         P7             0.05391      0.06451     0.79085      0.343
P3               8.555345          0.11918        6.51847      1.723         P8            -0.04559     -0.05214     0.72221      0.223
P21           -0.3064508E-02      -1.15463        0.00182      2.836         P9             0.06236      0.06513     0.60236      0.349
R3               3.185485          0.10764        2.53415      1.580         P10            0.11764      0.11128     0.49417      1.028
P1             0.2061575E-02       0.36799        0.00082      6.315         P11            0.08032      0.09736     0.81135      0.785
P2              13.57772           0.37932        5.93991      5.225         P12            0.07985      0.09000     0.70162      0.670
(CONSTANT)     -1.967631                                                     P13           -0.04775     -0.06155     0.91748      0.312
                                                                             P15            0.08305      0.08978     0.64539      0.666
                                                                             P16            0.13667      0.10515     0.32693      0.917
                                                                             P17            0.12490      0.11546     0.47196      1.108
                                                                             P18            0.05260      0.05495     0.60266      0.248
                                                                             P19           -0.01264     -0.01498     0.77542      0.018
                                                                             P20            0.06307      0.06502     0.58697      0.348
                                                                             P22           -2.76311     -0.08935     0.00058      0.660
                                                                             P24          -10.51945     -0.08934     0.00004      0.660
                                                                             R1             0.02086      0.02426     0.74725      0.048
                                                                             R2            -0.02227     -0.02663     0.78946      0.058
                                                                             R4             0.08713      0.10484     0.79969      0.911
                                                                             R5            -0.09103     -0.11539     0.88733      1.107
                                                                             R7            -0.04135     -0.02224     0.15981      0.041
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC--1=SEP                                       08/25/80        PAGE  835
SENIOR HIGH ONLY
FILE  NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  9
DEPENDENT VARIABLE..    C129

                                                           SUMMARY TABLE

VARIABLE                                        MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                  BETA

JUR                                              0.43590    0.19001    0.19001    -0.43590     -3.721921               -0.14703
P23                                              0.55795    0.31131    0.12130     0.41020      0.7187918E-02           1.50021
P14                                              0.57900    0.33524    0.02393    -0.32286     -0.5413673E-01          -0.19121
R6                                               0.59975    0.35970    0.02446     0.15437      5.299676                0.17060
P3                                               0.61277    0.37549    0.01580     0.05349     19.57798                 0.27272
P21                                              0.62479    0.39036    0.01487     0.39700     -0.2922268E-02          -1.10104
R3                                               0.63427    0.40230    0.01193     0.06052      3.841531                0.12981
P1                                               0.64261    0.41295    0.01065     0.22884      0.1808205E-02           0.32276
P2                                               0.66912    0.44772    0.03477    -0.09379     19.00173                 0.53085
P17                                              0.67460    0.45508    0.00736     0.06069     -0.1847311E-01          -0.48996
R5                                               0.68200    0.46513    0.01005    -0.10737     -6.844962               -0.17075
P7                                               0.68826    0.47371    0.00857     0.13612     32.28405                 0.24041
P13                                              0.69296    0.48019    0.00648    -0.17002     -0.1923911E-03          -0.06571
P15                                              0.69672    0.48541    0.00523     0.13908      0.2492450E-01           0.14843
P6                                               0.70169    0.49237    0.00696    -0.09219     -0.3371897              -0.14209
P12                                              0.70601    0.49844    0.00607    -0.03206      0.9107642E-02           0.13231
P18                                              0.70808    0.50137    0.00293     0.14701     -0.6667418E-02          -0.13327
P4                                               0.71062    0.50498    0.00361     0.27662      0.3366028E-03           0.18731
P20                                              0.71355    0.50916    0.00417     0.23831     -0.1487826              -2.03816
P10                                              0.71816    0.51575    0.00660     0.06873      0.5645961E-01           1.51566
P9                                               0.72737    0.52907    0.01332     0.34662    220.6848                  1.21010
P19                                              0.73259    0.53668    0.00761    -0.24793     -0.3700650E-01          -0.36605
P16                                              0.73562    0.54113    0.00445     0.08290      0.2425101E-01           0.28366
P11                                              0.73807    0.54474    0.00361     0.14268      0.7730344E-02           0.10432
R7                                               0.73994    0.54752    0.00277     0.29865    -10.48683                -0.13609
P5                                               0.74105    0.54916    0.00164     0.08925     -0.1028304              -0.04800
R4                                               0.74151    0.54984    0.00068    -0.00447      1.207487                0.03666
P8                                               0.74171    0.55014    0.00030    -0.31376     28.99929                 0.13702
(CONSTANT)                                                                                  -110.3566
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                            08/25/80        PAGE  842
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                               REGRESSION LIST 10

DEPENDENT VARIABLE..     C138

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P6

MULTIPLE R            0.60852          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES        MEAN SQUARE            F         P
R SQUARE              0.37029          REGRESSION                7.          2665.30986          380.75855         7.14041    0.0000
ADJUSTED R SQUARE     0.31843          RESIDUAL                 85.          4532.57685           53.32443
STANDARD ERROR        7.30236

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE                B            BETA     STD ERROR B        F       VARIABLE      BETA IN       PARTIAL    TOLERANCE         F

JUR           -8.336785        -0.44796        2.16880      14.776       P3           0.04405       0.04449      0.64222       0.167
P8           -36.80867         -0.23658       16.77573       4.814       P4           0.02671       0.02599      0.59594       0.057
R5            -5.319640        -0.18051        2.65780       4.006       P5          -0.03817      -0.04650      0.93435       0.182
R4            -3.293323        -0.13603        2.17687       2.289       P7           0.07071       0.07921      0.79021       0.530
P1             0.1451408E-02    0.35241        0.00063       5.316       P9           0.11236       0.10338      0.53300       0.907
P2             8.326643         0.31642        4.39123       3.596       P10          0.05011       0.05187      0.67460       0.227
P6             0.2073500        0.11885        0.16990       1.489       P11          0.06348       0.07647      0.91380       0.494
(CONSTANT)     7.469192                                                  P12          0.04362       0.05131      0.87122       0.222
                                                                         P13         -0.03474      -0.04192      0.91677       0.148
                                                                         P14          0.03077       0.03597      0.86059       0.109
                                                                         P15          0.01388       0.01352      0.59693       0.015
                                                                         P16         -0.03950      -0.03283      0.43497       0.091
                                                                         P17          0.02219       0.02307      0.68054       0.045
                                                                         P18          0.07983       0.08242      0.67124       0.575
                                                                         P19          0.12784       0.04456      0.07649       0.167
                                                                         P20          0.07808       0.07752      0.62076       0.508
                                                                         P21          0.02484       0.02981      0.90709       0.075
                                                                         P22          0.02681       0.03217      0.90718       0.087
                                                                         P23          0.02969       0.03553      0.90182       0.106
                                                                         P24          0.02666       0.03198      0.90588       0.086
                                                                         R1          -0.01483      -0.01624      0.75493       0.022
                                                                         R2          -0.05514      -0.06676      0.92332       0.376
                                                                         R3          -0.00389      -0.00466      0.90060       0.002
                                                                         R6           0.07597       0.08739      0.83330       0.646
                                                                         R7          -0.00378      -0.00466      0.95328       0.002
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                  08/25/80        PAGE  864
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                REGRESSION LIST 10
DEPENDENT VARIABLE..    C138

                                              SUMMARY TABLE

VARIABLE                               MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                  BETA

JUR                                      0.49598   0.24600   0.24600   -0.49598      -5.392301              -0.28975
P8                                       0.51829   0.26862   0.02263   -0.34681      -24.94872              -0.16035
R5                                       0.54188   0.29363   0.02501   -0.07638      -6.014318              -0.20408
R4                                       0.56686   0.32133   0.02770   -0.08612      -3.260177              -0.13466
P1                                       0.57914   0.33540   0.01407    0.35951      0.1183829E-02           0.28744
P2                                       0.59938   0.35926   0.02385   -0.26680       4.969995               0.18887
P6                                       0.60852   0.37029   0.01103   -0.01441      0.9859730E-02           0.00565
P9                                       0.61402   0.37702   0.00673    0.36437       88.92746               0.66329
P7                                       0.62004   0.38445   0.00743    0.13788       20.60669               0.20873
R6                                       0.62354   0.38881   0.00436    0.17540       1.893550               0.08291
P3                                       0.62639   0.39237   0.00356    0.04630       6.906413               0.13086
P11                                      0.63112   0.39831   0.00595    0.18801      0.6970733E-02           0.12796
P5                                       0.63332   0.40109   0.00278    0.03434     -0.2118305              -0.13449
P4                                       0.63653   0.40517   0.00408    0.22363     -0.1658770E-03          -0.12556
P19                                      0.63842   0.40758   0.00241   -0.24841     -0.9319997E-02          -0.12540
P16                                      0.64055   0.41031   0.00273    0.20392     -0.6759068E-02          -0.10754
P10                                      0.64681   0.41837   0.00806    0.16983      0.3722047E-01           1.35914
P17                                      0.65624   0.43065   0.01228    0.15359     -0.2143579E-01          -0.77335
P20                                      0.65956   0.43502   0.00438    0.29697     -0.4612728E-01          -0.85953
R2                                       0.66149   0.43757   0.00255   -0.02736      -1.646824              -0.06653
P12                                      0.66199   0.43824   0.00067   -0.08005      0.1988586E-02           0.03930
P14                                      0.66242   0.43880   0.00056   -0.16867      0.6843367E-02           0.03288
P23                                      0.66291   0.43945   0.00065    0.14963      0.2347295E-02           0.66640
R7                                       0.66747   0.44552   0.00606    0.02792      -13.17917              -0.23265
P21                                      0.66889   0.44741   0.00189    0.15498     -0.8372552E-03          -0.42910
R1                                       0.66908   0.44766   0.00025   -0.09881     -0.6857927              -0.03003
P15                                      0.66923   0.44787   0.00021    0.15798      0.3570719E-02           0.02892
P18                                      0.66933   0.44800   0.00013    0.27095     -0.9755473E-03          -0.02652
(CONSTANT)                                                                            -39.88024
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE  872
SENIOR HIGH ONLY
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                   REGRESSION LIST 11
DEPENDENT VARIABLE..    C143

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P5

MULTIPLE R           0.68315          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES         MEAN SQUARE              F          P
R SQUARE             0.46669          REGRESSION               8.         190020.57698         23752.57212          9.18844    0.0000
ADJUSTED R SQUARE    0.41590          RESIDUAL                84.         217144.17408          2585.04969
STANDARD ERROR      50.84338

----------------- VARIABLES IN THE EQUATION ------------------     ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B             BETA      STD ERROR B       F        VARIABLE       BETA IN      PARTIAL   TOLERANCE          F

P23           0.1290144         4.86995        0.03731      11.955      P1             0.01347      0.01155     0.39257         0.011
P22          -0.2109112        -7.93873        0.07463       7.988      P2             0.03899      0.02861     0.28713         0.068
JUR          -46.04608         -0.32897       13.91243      10.954      P3             0.07356      0.08724     0.75023         0.637
P16          -0.1683942        -0.35623        0.05582       9.100      P6             0.03345      0.04130     0.81298         0.142
P21           0.4968345E-01     3.38557        0.02491       3.979      P7            -0.02772     -0.03658     0.92893         0.111
R4            28.87993          0.15860       14.73895       3.839      P8             0.06392      0.07025     0.64418         0.412
P4            0.1750004E-02     0.17613        0.00110       2.520      P9            -0.06820     -0.04367     0.21865         0.159
P5             1.368037         0.11548        0.97404       1.973      P10            0.08706      0.07009     0.34566         0.410
(CONSTANT)    10.96325                                                  P11           -0.03681     -0.04618     0.83933         0.177
                                                                        P12           -0.02730     -0.03397     0.82557         0.096
                                                                        P13            0.03697      0.04779     0.89086         0.190
                                                                        P14           -0.08480     -0.09691     0.69650         0.787
                                                                        P15            0.07028      0.07259     0.56893         0.440
                                                                        P17            0.02901      0.02340     0.34692         0.045
                                                                        P18           -0.03774     -0.03535     0.46788         0.104
                                                                        P19            0.05411      0.06503     0.77031         0.353
                                                                        P20            0.00562      0.00322     0.17526         0.001
                                                                        P24        999999.99999 99999.99999    -0.00000     99999.999
                                                                        R1             0.05125      0.06321     0.81122         0.333
                                                                        R2            -0.03662     -0.04745     0.89537         0.187
                                                                        R3             0.06348      0.08187     0.88691         0.560
                                                                        R5             0.02913      0.03645     0.83492         0.110
                                                                        R6            -0.10361     -0.13320     0.88147         1.499
                                                                        R7             0.03229      0.01754     0.15742         0.026
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80         PAGE  890
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST 11
DEPENDENT VARIABLE..    C143

                                                   SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                     BETA

P23                                         0.44129    0.19474   0.19474     0.44129      0.1251796                  4.72520
P22                                         0.52854    0.27935   0.08461     0.41712     -0.1997934                 -7.52025
JUR                                         0.56665    0.32110   0.04174    -0.23945     -43.29105                  -0.30929
P16                                         0.62040    0.38489   0.06380    -0.18344     -0.1939770                 -0.41035
P21                                         0.64536    0.41650   0.03160     0.41294      0.4495161E-01              3.06313
R4                                          0.66370    0.44049   0.02400     0.17201      22.98671                   0.12623
P4                                          0.67392    0.45417   0.01368     0.20646      0.1789680E-02              0.18012
P5                                          0.68315    0.46669   0.01252     0.20104      1.148436                   0.09695
R6                                          0.69004    0.47615   0.00946    -0.04468     -16.68837                  -0.09716
P14                                         0.69342    0.48083   0.00468    -0.26147     -0.2733265                 -0.17459
P10                                         0.69679    0.48552   0.00469    -0.01149      0.1137616                  0.55233
P11                                         0.70219    0.49307   0.00755     0.04589     -0.2908530E-01             -0.07099
R2                                          0.70502    0.49705   0.00399    -0.16564     -19.66156                  -0.10561
P2                                          0.70716    0.50008   0.00302     0.15079      16.68345                   0.08429
P17                                         0.70867    0.50221   0.00214    -0.04800     -0.3397917E-01             -0.16299
P3                                          0.70947    0.50335   0.00114     0.00322      41.87618                   0.10550
P6                                          0.71139    0.50608   0.00273    -0.07863     -1.260490                   0.09606
R5                                          0.71219    0.50722   0.00114    -0.01968     -10.46507                  -0.04721
P9                                          0.71293    0.50826   0.00105     0.25459     -1.124326                  -0.00112
P8                                          0.71307    0.50847   0.00021    -0.11796      322.9460                   0.27598
P19                                         0.71368    0.50934   0.00087    -0.10581     -0.1603209                 -0.28681
P1                                          0.71382    0.50954   0.00020    -0.14388      0.8021122E-03              0.02589
P15                                         0.71392    0.50969   0.00014     0.14755      0.2753639E-01              0.02966
P18                                         0.71398    0.50977   0.00008    -0.03626      0.4983799E-02              0.01802
P20                                         0.71404    0.50985   0.00008     0.15623     -0.4097532E-01             -0.10152
(CONSTANT)                                                                              -101.6723
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80      PAGE  901
SENIOR HIGH ONLY
FILE   NONAME   (CREATION DATE = 08/25/80)
* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                               REGRESSION LIST 12
DEPENDENT VARIABLE..    C159

VARIABLE(S) ENTERED ON STEP NUMBER 11..    P10

MULTIPLE R           0.61486           ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE           F          P
R SQUARE             0.37805           REGRESSION              11.        4481.98401          407.45309         4.47595    0.0000
ADJUSTED R SQUARE    0.29359           RESIDUAL                81.        7373.56772           91.03170
STANDARD ERROR       9.54105

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B             BETA       STD ERROR B       F         VARIABLE       BETA IN      PARTIAL    TOLERANCE         F

P7             32.69092          0.25802       19.81479      2.722        P1             0.10227      0.09330     0.51770        0.703
JUR            -8.118562        -0.33991        2.76743      8.606        P2            -0.03956     -0.02786     0.30832        0.062
P13            -0.4993590E-03   -0.18077        0.00027      3.459        P4            -0.10320     -0.06428     0.24133        0.332
P3             12.14208          0.17927        6.60761      3.377        P5             0.07437      0.08799     0.87053        0.624
R7             13.33953          0.18348        6.94912      3.685        P6            -0.04013     -0.03569     0.49212        0.102
R6              3.142139         0.10720        2.68006      1.375        P11           -0.09717     -0.08828     0.51340        0.628
P9            -82.00446         -0.47659       27.53768      8.868        P12           -0.06042     -0.06418     0.70188        0.331
P18             0.1067987E-01    0.22626        0.00824      1.681        P14            0.05362      0.05132     0.56958        0.211
P16            -0.4184573E-01   -0.51877        0.01481      7.986        P15           -0.08272     -0.06068     0.33466        0.296
P8            -70.59603         -0.35355       29.35171      5.785        P17            0.07193      0.01750     0.03682        0.025
P10             0.1750279E-01    0.49800        0.00846      4.283        P19           -0.15780     -0.03327     0.02765        0.089
(CONSTANT)    -32.74825                                                   P20           -0.44796     -0.07972     0.01970        0.512
                                                                          P21           -0.03659     -0.02048     0.19483        0.034
                                                                          P22           -0.01857     -0.00985     0.17512        0.008
                                                                          P23            0.00924      0.00468     0.15947        0.002
                                                                          P24           -0.02161     -0.01157     0.17843        0.011
                                                                          R1            -0.07564     -0.08340     0.75614        0.560
                                                                          R2             0.01372      0.01541     0.78386        0.019
                                                                          R3             0.08073      0.09368     0.83763        0.708
                                                                          R4             0.00432      0.00506     0.85353        0.002
                                                                          R5            -0.04157     -0.04908     0.86689        0.193
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                 08/25/80        PAGE  920
SENIOR HIGH ONLY
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST 12

DEPENDENT VARIABLE..     C159

                                                       SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                   BETA

P7                                          0.30960    0.09585    0.09585    0.30960       24.14504               0.19057
JUR                                         0.40970    0.16786    0.07200   -0.28265       -5.788692             -0.24236
P13                                         0.44794    0.20065    0.03279   -0.28650     -0.5852977E-03          -0.21188
P3                                          0.47976    0.23017    0.02952    0.09670       12.14211               0.17927
R7                                          0.50093    0.25094    0.02076    0.13105       11.46681               0.15772
R6                                          0.51356    0.26374    0.01281    0.12579       4.525678               0.15441
P9                                          0.52621    0.27689    0.01315    0.06308       12.69094               0.07376
P18                                         0.54485    0.29686    0.01997    0.21230      0.1166579E-01           0.24715
P16                                         0.56878    0.32351    0.02665   -0.00211     -0.4865840E-01          -0.60323
P8                                          0.58750    0.34516    0.02165   -0.30139       54.15156               0.27119
P10                                         0.61486    0.37805    0.03289   -0.06062      0.2357225E-01           0.67070
R3                                          0.61928    0.38351    0.00546    0.04179       2.793170               0.10004
P1                                          0.62442    0.38990    0.00639    0.16705      0.1314766E-02           0.24874
P11                                         0.62849    0.39500    0.00510   -0.05657     -0.1254019E-01          -0.17937
R2                                          0.63221    0.39969    0.00469   -0.00104       1.699321               0.05349
P5                                          0.63579    0.40423    0.00454    0.04589      0.1037983               0.05135
P17                                         0.63931    0.40872    0.00449   -0.04687      0.2256214E-01           0.63425
P19                                         0.64345    0.41403    0.00531   -0.27841     -0.7143947E-01          -0.74897
R4                                          0.64651    0.41798    0.00395   -0.02169       1.494640               0.04810
P20                                         0.64903    0.42124    0.00327    0.00830     -0.4736786E-01          -0.68775
P2                                          0.65137    0.42428    0.00304   -0.10313       4.516649               0.13374
P4                                          0.65356    0.42714    0.00285    0.01904     -0.2788045E-03          -0.16444
P12                                         0.65503    0.42907    0.00193   -0.13501     -0.5071118E-02          -0.07808
R1                                          0.65534    0.42947    0.00040   -0.16386      -1.283534              -0.04379
P23                                         0.65556    0.42976    0.00029    0.16231      0.9884861E-02           2.18666
P22                                         0.66240    0.43877    0.00900    0.15204     -0.1272874E-01          -2.80777
P15                                         0.66274    0.43922    0.00045   -0.04749     -0.9467594E-02          -0.05976
P21                                         0.66316    0.43978    0.00056    0.14304      0.1752757E-02           0.69995
P14                                         0.66331    0.43998    0.00019   -0.17129      0.5714390E-02           0.02139
(CONSTANT)                                                                                -64.09579
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE  938
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)
* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                    REGRESSION LIST   1

DEPENDENT VARIABLE..    C16

VARIABLE(S) ENTERED ON STEP NUMBER 11..     P12

MULTIPLE R             0.75840           ANALYSIS OF VARIANCE       DF       SUM OF SQUARES        MEAN SQUARE             F           P
R SQUARE               0.57518           REGRESSION                 11.          30258.70890         2750.79172        9.96976      0.0000
ADJUSTED R SQUARE      0.51748           RESIDUAL                   81.          22348.98751          275.91343
STANDARD ERROR        16.61064

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B             BETA      STD ERROR B        F           VARIABLE        BETA IN      PARTIAL    TOLERANCE          [illegible]

JUR               -22.32402       -0.44371        5.02072     19.770         P1             0.06784      0.07439      0.51083          0.445
P13          -0.1406109E-02       -0.24164        0.00046      9.149         P2             0.01679      0.01409      0.29895          0.016
P3                 35.80960        0.25099       14.29593      6.274         P4            -0.11612     -0.08506      0.22797          0.583
P8                -127.4289       -0.30295       54.10577      5.547         P5             0.07382      0.10631      0.88115          0.915
P7                 83.16808        0.31162       27.10583      9.414         P9             0.41979      0.11685      0.03292          1.108
P15            0.6825891E-01       0.20453        0.04363      2.448         P11            0.05247      0.05680      0.49782          0.259
P16           -0.7043596E-01      -0.41453        0.02530      7.751         P14           -0.03254     -0.03752      0.56504          0.113
P10            0.4744073E-01       0.64079        0.01859      6.514         P17            0.17543      0.04968      0.03407          0.198
P20           -0.4394168E-01      -0.30287        0.02563      2.940         P18            0.07414      0.05735      0.25418          0.264
P6                -0.8126920      -0.17231        0.51963      2.446         P19            0.00139      0.00034      0.02576          0.000
P12           -0.1686303E-01      -0.12326        0.01186      2.023         P21            0.05144      0.07015      0.79017          0.396
(CONSTANT)         34.26857                                                  P22            0.05087      0.06945      0.79187          0.388
                                                                             P23            0.05027      0.06799      0.77712          0.371
                                                                             P24            0.05107      0.06951      0.78706          0.388
                                                                             R1            -0.10078     -0.13277      0.73738          1.436
                                                                             R2            -0.03374     -0.04366      0.71127          0.153
                                                                             R3             0.05370      0.07516      0.83205          0.454
                                                                             R4            -0.03534     -0.05184      0.91393          0.216
                                                                             R5             0.01029      0.01462      0.85760          0.017
                                                                             R6             0.06042      0.08966      0.93539          0.648
                                                                             R7             0.04650      0.06520      0.83525          0.342
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE  956
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                  REGRESSION LIST  1
DEPENDENT VARIABLE..     C16

                                                         SUMMARY TABLE

VARIABLE                                         MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                     BETA

JUR                                               0.58382    0.34085    0.34085    -0.58382      -17.23575               -0.34257
P13                                               0.63165    0.39899    0.05813    -0.34857      -0.1617117E-02          -0.27[illegible]
P3                                                0.66746    0.44551    0.04652     0.08641       44.64090                0.31[illegible]
P8                                                0.69538    0.48355    0.03804    -0.45752       205.0129                0.48740
P7                                                0.70226    0.49317    0.00962     0.23218       55.21121                0.20687
P15                                               0.71846    0.51619    0.02302     0.20605       0.9452491E-01           0.28322
P16                                               0.72900    0.53144    0.01525     0.20154      -0.5201531E-01          -0.30612
P10                                               0.73528    0.54063    0.00919     0.11899       0.6404423E-01           0.86505
P20                                               0.74363    0.55298    0.01235     0.24531      -0.1840792              -1.26878
P6                                                0.75138    0.56457    0.01158    -0.07630      -0.8940559              -0.18956
P12                                               0.75840    0.57518    0.01061    -0.20734      -0.1583482E-01          -0.11574
R1                                                0.76333    0.58267    0.00749    -0.21865      -10.67148               -0.17284
P5                                                0.76778    0.58949    0.00683     0.09282       0.2538831               0.05962
P1                                                0.77081    0.59415    0.00466     0.33138       0.1109115E-02           0.09961
P2                                                0.77340    0.59814    0.00399    -0.29802       12.36214                0.17377
P4                                                0.77518    0.60090    0.00276     0.21700      -0.7170650E-03          -0.20077
P17                                               0.77717    0.60399    0.00308     0.12124       0.2723509E-01           0.36345
R2                                                0.77861    0.60624    0.00226    -0.05835      -6.705852               -0.10021
R4                                                0.78015    0.60863    0.00239    -0.02346      -2.948859               -0.04505
P23                                               0.78128    0.61040    0.00177     0.15813      -0.3650089E-02          -0.38331
P9                                                0.78243    0.61220    0.00180     0.32169       251.0290                0.69258
P19                                               0.78566    0.61726    0.00506    -0.36743      -0.1809286              -0.90047
P18                                               0.78860    0.62189    0.00463     0.27281       0.1747530E-01           0.17576
P22                                               0.78883    0.62225    0.00036     0.15988       0.7002805E-02           0.73330
R5                                                0.78895    0.62244    0.00019     0.09170      -1.584015               -0.01988
P14                                               0.78900    0.62253    0.00009    -0.24771      -0.8902569E-02          -0.01582
R7                                                0.78907    0.62263    0.00011     0.06736      -5.239367               -0.03421
P21                                               0.78913    0.62272    0.00009     0.15822      -0.1434365E-02          -0.27192
(CONSTANT)                                                                                     -65.74914
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                             08/25/80        PAGE  965
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  2

DEPENDENT VARIABLE..     C32

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P23

MULTIPLE R             0.75290          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES          MEAN SQUARE               F            P
R SQUARE               0.56685          REGRESSION                9.         19183.85813           2131.53979         12.06897      0.0000
ADJUSTED R SQUARE      0.51989          RESIDUAL                 83.         14658.89409            176.61318
STANDARD ERROR        13.28959

----------------- VARIABLES IN THE EQUATION ------------------         ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B           BETA      STD ERROR B         F         VARIABLE       BETA IN      PARTIAL    TOLERANCE           F

JUR             -13.84828      -0.34317        4.25675      10.584         P1            0.03559      0.03947      0.53262         0.128
P13         -0.1320443E-02     -0.28292        0.00037      12.883         P2            0.05052      0.04387      0.32655         0.158
P14         -0.7494959E-01     -0.16606        0.04077       3.380         P4           -0.02464     -0.02354      0.39541         0.045
P8              -379.6904      -1.12544      104.01866      13.324         P5            0.06973      0.10059      0.90137         0.838
P19             0.1621718       1.00631        0.05026      10.409         P6           -0.01914     -0.01928      0.43955         0.030
P16         -0.2365974E-01     -0.17360        0.01506       2.468         P9            0.04069      0.03739      0.36561         0.115
P7               43.51365       0.20327       20.03933       4.715         P10           0.08494      0.04630      0.12868         0.176
P3               13.77523       0.12038        8.99143       2.347         P11          -0.07488     -0.09224      0.65730         0.704
P23          0.8074466E-03      0.10572        0.00058       1.909         P12          -0.00505     -0.00669      0.75882         0.004
(CONSTANT)       68.42773                                                  P15           0.11229      0.09805      0.33028         0.796
                                                                           P17           0.12568      0.06860      0.12907         0.388
                                                                           P18           0.09717      0.07105      0.23160         0.416
                                                                           P20           0.02026      0.01654      0.28840         0.022
                                                                           P21          -0.98638     -0.17688      0.01393         2.648
                                                                           P22          -1.92306     -0.21180      0.00925         3.851
                                                                           P24          -1.67477     -0.18845      0.00548         3.019
                                                                           R1           -0.07408     -0.09915      0.77598         0.814
                                                                           R2           -0.03345     -0.04632      0.83048         0.176
                                                                           R3            0.00523      0.00775      0.94993         0.005
                                                                           R4            0.04708      0.06875      0.92356         0.389
                                                                           R5           -0.01157     -0.01686      0.91981         0.023
                                                                           R6            0.05227      0.07661      0.93057         0.484
                                                                           R7           -0.06415     -0.04038      0.17163         0.134
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80        PAGE  986
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                              REGRESSION LIST  2

DEPENDENT VARIABLE..     C32

                                                       SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                   BETA

JUR                                        0.56126    0.31501   0.31501    -0.56126      -6.002708              -0.14875
P13                                        0.62608    0.39197   0.07696    -0.37988     -0.1713489E-02          -0.36713
P14                                        0.66957    0.44832   0.05634    -0.36861     -0.1152393              -0.25533
P8                                         0.68818    0.47359   0.02527    -0.47318     -40.09916               -0.11886
P19                                        0.70947    0.50335   0.02976    -0.37585     -0.1459166E-01          -0.09054
P16                                        0.72375    0.52381   0.02046     0.16503     -0.2632555E-01          -0.19317
P7                                         0.73889    0.54596   0.02216     0.23820      20.78320                0.09709
P3                                         0.74625    0.55689   0.01093     0.03901      21.87670                0.19117
P23                                        0.75290    0.56685   0.00996     0.25330      0.2242607E-01           2.93624
P22                                        0.76569    0.58628   0.01943     0.24581     -0.2721918E-01          -3.55368
P1                                         0.77038    0.59348   0.00720     0.34347      0.2283701E-02           0.25572
P21                                        0.77434    0.59960   0.00612     0.23991      0.3695451E-02           0.87345
R1                                         0.77873    0.60642   0.00682    -0.22139     -7.735776               -0.15621
P2                                         0.78105    0.61004   0.00362    -0.28763      13.78042                0.24151
P15                                        0.78293    0.61298   0.00293     0.17971      0.3314500E-01           0.12382
R5                                         0.78524    0.61660   0.00362     0.04233     -5.062943               -0.07923
P17                                        0.78671    0.61891   0.00231     0.08550      0.5509245E-01           0.91664
P11                                        0.79292    0.62873   0.00982     0.07443     -0.2679888E-01          -0.22687
P4                                         0.79570    0.63314   0.00441     0.23866     -0.6688496E-03          -0.23349
P9                                         0.79829    0.63727   0.00412     0.36504      233.4717                0.80310
P20                                        0.80360    0.64577   0.00850     0.25007     -0.1059229              -0.91026
R7                                         0.80608    0.64977   0.00400     0.14048     -22.96426               -0.18695
P12                                        0.80742    0.65192   0.00215    -0.12420     -0.7669050E-02          -0.06989
P18                                        0.80886    0.65426   0.00233     0.27976      0.1092878E-01           0.13704
P6                                         0.80929    0.65495   0.00069    -0.04898     -0.1717425              -0.04540
R2                                         0.80966    0.65555   0.00060    -0.10593     -2.802872               -0.05222
R3                                         0.80994    0.65600   0.00044     0.03869     -1.780271               -0.03774
P5                                         0.81017    0.65638   0.00038     0.11243      0.9025014E-01           0.02643
R6                                         0.81031    0.65661   0.00023     0.11123     -1.070931               -0.02163
(CONSTANT)                                                                               -8.904141
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                08/25/80        PAGE 1000
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  3

DEPENDENT VARIABLE..    C48

VARIABLE(S) ENTERED ON STEP NUMBER 14..    P12

MULTIPLE R            0.84354          ANALYSIS OF VARIANCE    DF      SUM OF SQUARES      MEAN SQUARE          F          P
R SQUARE              0.71157          REGRESSION              14.       13235.77226         945.41230       13.74472    0.0000
ADJUSTED R SQUARE     0.65980          RESIDUAL                78.        5365.12543          68.78366
STANDARD ERROR        8.29359

----------------- VARIABLES IN THE EQUATION ------------------          ------------ VARIABLES NOT IN THE EQUATION --------------

VARIABLE              B              BETA     STD ERROR B        F          VARIABLE        BETA IN       PARTIAL    TOLERANCE          F

P13          -0.1951778E-02     -0.56408       0.00025       59.423         P1             0.10041       0.09898     0.28028         0.762
P9             215.3748          0.99930      59.86848       12.942         P4             0.02599       0.02113     0.19071         0.034
P14          -0.6348115E-01     -0.18972       0.02712        5.478         P6            -0.11058      -0.12914     0.39337         1.306
P3              19.45907         0.22937       6.37815        9.308         P7             0.14759       0.15375     0.31301         1.864
P18           0.2385834E-01      0.40353       0.00532       20.080         P8            -0.02202      -0.00634     0.02389         0.003
P5             0.5032610         0.19876       0.16793        8.982         P10            0.49560       0.11476     0.01546         1.028
R2              5.526444         0.13888       2.87487        3.695         P11           -0.15273      -0.18078     0.40412         2.601
P2              16.05098         0.37943       3.84487       17.428         P16           -0.13343      -0.08392     0.11410         0.546
JUR            -3.322362        -0.11105       3.07430        1.168         P21            0.09252       0.14861     0.74414         1.739
P15           0.1794291E-01      0.09042       0.02145        0.700         P22            0.09803       0.15771     0.74649         1.964
P20           -0.1077501        -1.24899       0.03114       11.971         P23            0.10390       0.16620     0.73796         2.187
P17           0.2941661E-01      0.66019       0.00954        9.518         P24            0.09711       0.15586     0.74296         1.917
P19          -0.2498664E-01     -0.20914       0.01253        3.976         R1            -0.10237      -0.15783     0.68565         1.967
P12          -0.1015660E-01     -0.12485       0.00603        2.835         R3            -0.02414      -0.03880     0.74530         0.116
(CONSTANT)    -31.16528                                                     R4             0.09861       0.17204     0.87798         2.349
                                                                            R5            -0.00662      -0.01116     0.82040         0.010
                                                                            R6            -0.00309      -0.00529     0.84224         0.002
                                                                            R7             0.03917       0.06463     0.78515         0.323
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80       PAGE 1015
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  3
DEPENDENT VARIABLE..     C48

                                                   SUMMARY TABLE

VARIABLE                                  MULTIPLE R   R SQUARE   RSQ CHANGE   SIMPLE R          B                    BETA

P13                                         0.48360    0.23387    0.23387     -0.48360     -0.2155648E-02          -0.62300
P9                                          0.61242    0.37506    0.14119      0.37507      231.7059                1.07508
P14                                         0.66427    0.44126    0.06620     -0.28146     -0.6654503E-01          -0.19888
P3                                          0.69840    0.48776    0.04650      0.11548      22.00330                0.25935
P18                                         0.73409    0.53889    0.05113      0.27757      0.1450749E-01           0.24538
P5                                          0.76423    0.58405    0.04516      0.22530      0.4593457               0.18142
R2                                          0.77451    0.59986    0.01581      0.00167      6.971234                0.17519
P2                                          0.78589    0.61762    0.01777     -0.11696      17.96024                0.42456
JUR                                         0.80272    0.64436    0.02674     -0.43913      1.527624                0.05106
P15                                         0.80894    0.65438    0.01002      0.08986      0.3217195E-01           0.16212
P20                                         0.81765    0.66856    0.01417      0.26618     -0.1182812              -1.37106
P17                                         0.82707    0.68405    0.01549      0.06371      0.3255678E-01           0.73066
P19                                         0.83731    0.70108    0.01704     -0.38983     -0.2381484E-01          -0.19933
P12                                         0.84354    0.71157    0.01048     -0.18754     -0.1226538E-01          -0.15077
P11                                         0.84911    0.72099    0.00943      0.15719     -0.1416380E-01          -0.16174
R4                                          0.85375    0.72889    0.00790      0.01771      3.103686                0.07974
P23                                         0.85868    0.73733    0.00844      0.27209      0.6075772E-02           1.07302
R7                                          0.86444    0.74726    0.00993      0.15963     -27.47241               -0.30168
P21                                         0.86829    0.75393    0.00667      0.25529     -0.2187027E-02          -0.69726
P7                                          0.87119    0.75898    0.00505      0.27748      34.58281                0.21791
P10                                         0.87493    0.76551    0.00653      0.06310      0.2387803E-01           0.54240
P6                                          0.87775    0.77045    0.00494     -0.06993     -0.3232043              -0.11524
R1                                          0.88010    0.77458    0.00413     -0.21593     -3.632342               -0.09894
P1                                          0.88259    0.77897    0.00439      0.20381      0.1055527E-02           0.15943
P16                                         0.88494    0.78313    0.00416      0.09617     -0.2192440E-01          -0.21699
P4                                          0.88623    0.78541    0.00228      0.24065     -0.2169525E-03          -0.10216
R6                                          0.88698    0.78674    0.00133      0.11290      1.414596                0.03853
R5                                          0.88708    0.78690    0.00016      0.00952     -0.8228433              -0.01737
(CONSTANT)                                                                                 -76.92824
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                  08/25/80      PAGE 1027
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                           REGRESSION LIST  4
DEPENDENT VARIABLE..    C64

VARIABLE(S) ENTERED ON STEP NUMBER 12..    R1

MULTIPLE R           0.80162          ANALYSIS OF VARIANCE    DF      SUM OF SQUARES     MEAN SQUARE          F          P
R SQUARE             0.64260          REGRESSION              12.       21549.65804      1795.80484     11.98665     0.0000
ADJUSTED R SQUARE    0.58899          RESIDUAL                80.       11985.36701       149.81709
STANDARD ERROR      12.23998

----------------- VARIABLES IN THE EQUATION ------------------         ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B       F        VARIABLE     BETA IN      PARTIAL    TOLERANCE         F

P8             -126.8981       -0.37786       36.56220    12.046        P1           0.11679      0.13502     0.47769      1.467
JUR             -10.87820      -0.27080        3.52240     9.538        P2          -0.02596     -0.02392     0.30348      0.045
P13         -0.1808771E-02     -0.38932        0.00036    24.692        P4          -0.16473     -0.11938     0.18769      1.142
P18          0.2084662E-01      0.26260        0.01021     4.172        P6          -0.00500     -0.00571     0.46687      0.003
P3               24.10948       0.21165        8.54652     7.958        P9           0.30917      0.10393     0.04039      0.863
P16         -0.6251878E-01     -0.46084        0.01940    10.389        P10          0.1[illegible]878      0.04267     0.02284      0.144
P17          0.4671206E-01      0.78077        0.01218    14.712        P12         -0.02923     -0.03987     0.66497      0.126
P7               49.19744       0.23088       23.65719     4.325        P14         -0.08410     -0.10208     0.52658      0.832
P20         -0.3568737E-01     -0.30809        0.01639     4.744        P15          0.02369      0.02249     0.32210      0.040
P11         -0.1878136E-01     -0.15973        0.01169     2.582        P19          0.09959      0.02483     0.02221      0.049
P5               0.4729685      0.13912        0.24558     3.709        P21          0.04980      0.07474     0.80499      0.444
R1               -6.215292     -0.12608        3.79026     2.689        P22          0.05417      0.08130     0.80521      0.526
(CONSTANT)      -49.42126                                               P23          0.05963      0.08888     0.79394      0.629
                                                                        P24          0.05360      0.08029     0.80204      0.513
                                                                        R2           0.04116      0.05737     0.69434      0.261
                                                                        R3          -0.01293     -0.02012     0.86534      0.032
                                                                        R4           0.05420      0.08526     0.88441      0.578
                                                                        R5          -0.07234     -0.11362     0.88171      1.033
                                                                        R6          -0.02230     -0.03510     0.88545      0.097
                                                                        R7           0.02315      0.03585     0.85712      0.102
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                    08/25/80       PAGE 1044
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                               REGRESSION LIST  4
DEPENDENT VARIABLE..     C64

                                                  SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA

P8                                          0.54396    0.29589    0.29589    -0.54396      26.73291             0.07960
JUR                                         0.62275    0.38782    0.09193    -0.50550      -2.209210           -0.05500
P13                                         0.67447    0.45492    0.06710    -0.42098    -0.2009197E-02        -0.43246
P18                                         0.70129    0.49181    0.03689     0.42257     0.2121426E-01         0.26723
P3                                          0.73460    0.53964    0.04783     0.00904      24.19699             0.21242
P16                                         0.74929    0.56143    0.02179     0.24917    -0.4979190E-01        -0.36702
P17                                         0.[illegible]44    0.56917    0.00774     0.13707     0.5721468E-01         0.95631
P7                                          0.76869    0.59088    0.02171     0.37148      45.53052             0.21367
P20                                         0.77934    0.60736    0.01648     0.27655    -0.1383834           -1.19465
P11                                         0.78592    0.61767    0.01031     0.05546    -0.3160735E-01        -0.26880
P5                                          0.79410    0.63059    0.01292     0.04831     0.1413094            0.04157
R1                                          0.80162    0.64260    0.01201    -0.25989     -7.415717           -0.15043
P1                                          0.80568    0.64912    0.00652     0.34460     0.1724402E-02         0.19398
R5                                          0.80980    0.65578    0.00666     0.03965     -5.509715           -0.08662
P14                                         0.81205    0.65943    0.00365    -0.21457    -0.4995669E-01        -0.11119
P4                                          0.81453    0.66346    0.00403     0.25889    -0.7048264E-03        -0.24718
P2                                          0.81684    0.66723    0.00378    -0.31540      11.59565             0.20415
P9                                          0.81862    0.67014    0.00290     0.34413      238.9123             0.82558
P10                                         0.81998    0.67236    0.00223     0.11678     0.3123179E-01         0.52836
P19                                         0.82318    0.67762    0.00526    -0.44976    -0.8776105E-01        -0.54707
R4                                          0.82398    0.67895    0.00133     0.09310      1.900172            0.03636
P23                                         0.82478    0.68027    0.00132     0.12808     0.1412293E-01         1.85758
P22                                         0.82917    0.68752    0.00725     0.12032    -0.1223039E-01        -1.60409
R7                                          0.83398    0.69552    0.00801     0.03343     -28.45221           -0.23269
P12                                         0.83468    0.69669    0.00117    -0.08045    -0.4806380E-02        -0.04400
R2                                          0.83525    0.69764    0.00095    -0.03033      2.260959             0.04232
P6                                          0.83552    0.69810    0.00046    -0.09824    -0.1602374           -0.04255
P15                                         0.83591    0.69874    0.00064     0.08636     0.1485365E-01         0.05574
(CONSTANT)                                                                                -104.9067
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                       08/25/80        PAGE 1052
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  5
DEPENDENT VARIABLE..    CBO

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P8

MULTIPLE R           0.62516         ANALYSIS OF VARIANCE    DF      SUM OF SQUARES       MEAN SQUARE              F          P
R SQUARE             0.39083         REGRESSION               8.        4459.72949         557.46619         6.73643     0.0000
ADJUSTED R SQUARE    0.33281         RESIDUAL                84.        6951.32688          82.75389
STANDARD ERROR       9.09692

------------------ VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B            BETA      STD ERROR B        F        VARIABLE      BETA IN     PARTIAL    TOLERANCE          F

JUR           -6.149956       -0.26246        2.89604      4.510        P1            0.00822     0.00852     0.65427       0.006
P13        -0.7611664E-03     -0.28086        0.00026      8.368        P2            0.00801     0.00723     0.49579       0.004
P11        -0.2311893E-01     -0.33705        0.00793      8.491        P3           -0.00363    -0.00430     0.85370       0.002
P14        -0.6445589E-01     -0.24594        0.03011      4.583        P4           -0.05478    -0.04347     0.38348       0.157
P17         0.3212426E-01      0.92047        0.01559      4.244        P5            0.06921     0.08061     0.82640       0.543
P10        -0.2183391E-01     -0.63322        0.01484      2.164        P6           -0.01664    -0.01788     0.70379       0.027
R5            -5.592275       -0.15071        3.35336      2.781        P7           -0.04105    -0.04137     0.61876       0.142
P8           -25.39762        -0.12964       19.66816      1.667        P9           -0.04731    -0.03418     0.31789       0.097
(CONSTANT)    77.19738                                                  P12          -0.05092    -0.05811     0.79348       0.281
                                                                        P15           0.09994     0.07932     0.38367       0.525
                                                                        P16          -0.14200    -0.09052     0.24753       0.686
                                                                        P18          -0.02509    -0.02327     0.52408       0.045
                                                                        P19           0.38822     0.09475     0.03629       0.752
                                                                        P20          -0.11681    -0.06210     0.17219       0.321
                                                                        P21          -0.01799    -0.02191     0.90316       0.040
                                                                        P22          -0.01482    -0.01805     0.90273       0.027
                                                                        P23          -0.01012    -0.01234     0.90679       0.013
                                                                        P24          -0.01511    -0.01841     0.90386       0.028
                                                                        R1           -0.05684    -0.06447     0.78375       0.346
                                                                        R2            0.07826     0.09421     0.88273       0.743
                                                                        R3           -0.03084    -0.03801     0.92503       0.120
                                                                        R4           -0.03813    -0.04741     0.94145       0.187
                                                                        R6            0.06459     0.07919     0.91569       0.524
                                                                        R7           -0.04068    -0.05028     0.93059       0.210
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                      08/25/80        PAGE 1071
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                           REGRESSION LIST  5
DEPENDENT VARIABLE..     CBO

                                                         SUMMARY TABLE

VARIABLE                                          MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                   BETA

JUR                                                 0.45533    0.20732    0.20732    -0.45533     -2.338117                -0.09978
P13                                                 0.51417    0.26437    0.05704    -0.32171     -0.9898438E-03           -0.36524
P11                                                 0.55362    0.30649    0.04213    -0.10040     -0.2802724E-01           -0.40861
P14                                                 0.57007    0.32498    0.01848    -0.27246     -0.6330636E-01           -0.24156
P17                                                 0.58406    0.34113    0.01615     0.03329      0.3725248E-01            1.06742
P10                                                 0.60227    0.36273    0.02161     0.00801     -0.2206980E-01           -0.64006
R5                                                  0.61541    0.37873    0.01600    -0.04899     -5.478075                -0.14763
P8                                                  0.62516    0.39083    0.01209    -0.36374    -74.40497                 -0.37981
P19                                                 0.62952    0.39629    0.00547    -0.30991      0.2640383E-01            0.28216
R2                                                  0.63498    0.40320    0.00690     0.00584      3.983296                 0.12780
R6                                                  0.63971    0.40923    0.00603     0.12700      1.847317                 0.06424
P15                                                 0.64239    0.41267    0.00344     0.09617      0.2424146E-01            0.15596
P6                                                  0.64494    0.41594    0.00327    -0.12344     -0.1386683               -0.06313
P16                                                 0.64701    0.41862    0.00267     0.19806     -0.1748348E-01           -0.22093
P1                                                  0.64989    0.42236    0.00374     0.30040      0.4329960E-03            0.08350
P12                                                 0.65196    0.42505    0.00269    -0.12244     -0.3935515E-02           -0.06177
R7                                                  0.65355    0.42712    0.00207    -0.01977    -18.17125                 -0.25476
P23                                                 0.65622    0.43062    0.00350     0.07161      0.4342704E-02            0.97919
P21                                                 0.66172    0.43787    0.00725     0.06185     -0.1884009E-02           -0.76688
R1                                                  0.66335    0.44004    0.00217    -0.18920     -2.188689                -0.07611
P5                                                  0.66445    0.44149    0.00145     0.02549      0.7850705E-01            0.03959
P2                                                  0.66497    0.44219    0.00070    -0.33630     -1.845532                -0.05570
R4                                                  0.66531    0.44264    0.00045     0.07233     -0.9673108               -0.03173
P3                                                  0.66566    0.44311    0.00047    -0.08129     -2.571218                -0.03869
P7                                                  0.66591    0.44343    0.00032     0.19867      7.032396                 0.05658
P18                                                 0.66625    0.44389    0.00046     0.17811     -0.2283692E-02           -0.04832
(CONSTANT)                                                                                        72.79844
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE 1079
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  6

DEPENDENT VARIABLE..    C96

VARIABLE(S) ENTERED ON STEP NUMBER  8..    P5

MULTIPLE R            0.67998          ANALYSIS OF VARIANCE    DF       SUM OF SQUARES        MEAN SQUARE           F          P
R SQUARE              0.46237          REGRESSION               8.         31907.91911         3988.48989       9.03006     0.0000
ADJUSTED R SQUARE     0.41116          RESIDUAL                84.         37101.97535          441.69018
STANDARD ERROR       21.01643

----------------- VARIABLES IN THE EQUATION ------------------           ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE              B            BETA      STD ERROR B        F         VARIABLE       BETA IN      PARTIAL    TOLERANCE        F

JUR           -24.82598        -0.43082        5.95036     17.407         P1             0.10313      0.10088      0.51447      0.853
P23          0.2659370E-02      0.24383        0.00099      7.249         P2            -0.07302     -0.05570      0.31285      0.258
P16         -0.7222082E-01     -0.37110        0.02274     10.084         P3             0.03157      0.03907      0.82329      0.127
P8            -84.41068        -0.17521       47.21440      3.196         P6             0.06770      0.08166      0.78214      0.557
R6             8.922033         0.12617        6.07789      2.155         P7             0.09018      0.10727      0.76068      0.966
R3             7.715945         0.11454        5.68964      1.839         P9            -0.15820     -0.09680      0.20129      0.785
P4           0.6171475E-03      0.15087        0.00049      1.618         P10            0.03719      0.02520      0.24673      0.053
P5             0.5087110        0.10431        0.40757      1.558         P11           -0.06979     -0.08489      0.79546      0.602
(CONSTANT)    54.20212                                                   P12            0.04995      0.05930      0.75770      0.293
                                                                         P13            0.03368      0.04211      0.84054      0.147
                                                                         P14           -0.03153     -0.03465      0.64935      0.100
                                                                         P15            0.05091      0.05144      0.54892      0.220
                                                                         P17            0.00890      0.00620      0.26060      0.003
                                                                         P18            0.08468      0.07912      0.46938      0.523
                                                                         P19            0.20781      0.07465      0.06938      0.465
                                                                         P20           -0.16877     -0.09752      0.17949      0.797
                                                                         P21           -0.59676     -0.10033      0.01520      0.844
                                                                         P22           -0.77400     -0.07806      0.00547      0.509
                                                                         P24           -0.91505     -0.09608      0.00593      0.773
                                                                         R1             0.02986      0.03423      0.70662      0.097
                                                                         R2             0.00092      0.00115      0.84530      0.000
                                                                         R4             0.02813      0.03482      0.82379      0.101
                                                                         R5            -0.06040     -0.07239      0.77229      0.437
                                                                         R7            -0.10879     -0.06146      0.17161      0.315
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC--1=SEP                     08/25/80        PAGE 1099
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                            REGRESSION LIST  6
DEPENDENT VARIABLE..    C96

                                                     SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R        B                 BETA

JUR                                          0.42316   0.17906   0.17906   -0.42316     -17.55361          -0.30462
P23                                          0.54200   0.29376   0.11469    0.39876     0.1524835E-01       1.39810
P16                                          0.60039   0.36047   0.06671   -0.04413    -0.7939301E-01      -0.40795
P8                                           0.64535   0.41648   0.05601   -0.38652    -245.8644           -0.51035
R6                                           0.65515   0.42923   0.01275    0.16907      10.60229           0.14993
R3                                           0.66651   0.44424   0.01501    0.11672      10.76714           0.15983
P4                                           0.67260   0.45240   0.00816    0.29113     0.1318748E-02       0.32239
P5                                           0.67998   0.46237   0.00997    0.19277     0.5215469           0.10694
P7                                           0.68451   0.46855   0.00619    0.16817      71.54380           0.23405
P19                                          0.69198   0.47884   0.01029   -0.33667     0.4709678E-01       0.20466
P21                                          0.69647   0.48507   0.00622    0.38279    -0.5911840E-02      -0.97853
P9                                           0.70032   0.49045   0.00538    0.36687      63.92013           0.15398
P1                                           0.70383   0.49538   0.00493    0.13761     0.2002066E-02       0.15699
R7                                           0.70674   0.49948   0.00410    0.26472     -31.00098          -0.17674
P6                                           0.70906   0.50277   0.00329   -0.12289     0.2396983           0.04437
P12                                          0.71166   0.50647   0.00370   -0.03434     0.2175763E-01       0.13886
R5                                           0.71449   0.51050   0.00404   -0.07170     -8.625507          -0.09452
P11                                          0.71705   0.51416   0.00366    0.02641    -0.6482219E-02      -0.03843
P10                                          0.71932   0.51742   0.00326   -0.02278     0.7315742E-01       0.86276
P18                                          0.72194   0.52119   0.00377    0.12256    -0.1517409E-01      -0.13325
P17                                          0.72478   0.52530   0.00411   -0.03547    -0.4271840E-01      -0.49774
P20                                          0.72633   0.52755   0.00225    0.22362    -0.9583433E-01      -0.57673
P13                                          0.72785   0.52976   0.00222   -0.10502     0.2306723E-03       0.03461
P3                                           0.72861   0.53087   0.00111    0.00402      6.874320           0.04207
P15                                          0.72972   0.53249   0.00162    0.09501     0.3966702E-01       0.10377
R2                                           0.73020   0.53319   0.00070   -0.11016      3.020021           0.03940
P2                                           0.73056   0.53372   0.00053   -0.06679      4.773281           0.05858
(CONSTANT)                                                                             -56.86630
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1112
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  7

DEPENDENT VARIABLE..    C112

VARIABLE(S) ENTERED ON STEP NUMBER 13..    P7

MULTIPLE R             0.68177         ANALYSIS OF VARIANCE     DF       SUM OF SQUARES       MEAN SQUARE              F          P
R SQUARE               0.46481         REGRESSION               13.         10897.81030         838.29310         5.27772    0.0000
ADJUSTED R SQUARE      0.37674         RESIDUAL                 79.         12548.06131         158.83622
STANDARD ERROR        12.60302

---------------- VARIABLES IN THE EQUATION ------------------       ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE           B            BETA     STD ERROR B       F           VARIABLE       BETA IN      PARTIAL    TOLERANCE          F

P23        0.1715918E-01      2.69920      0.00744      5.325          P1            -0.05453     -0.04954     0.44175        0.192
R2          6.508354          0.14568      4.29433      2.297          P2             0.07484      0.05404     0.27903        0.228
R3          7.311617          0.18621      3.58837      4.152          P4             0.11010      0.06888     0.20946        0.372
P22       -0.1517433E-01     -2.38020      0.00739      4.219          P5             0.02708      0.03433     0.85993        0.092
JUR        -13.52820         -0.40277      3.74631     13.040          P8             0.04582      0.03824     0.37279        0.114
P16       -0.5944304E-01     -0.52403      0.01892      9.875          P9             0.14026      0.03789     0.03905        0.112
R5         -6.432832         -0.12094      4.77026      1.819          P10            0.25893      0.05980     0.02855        0.280
P17        0.4003287E-01      0.80025      0.01128     12.603          P11            0.07229      0.06635     0.45098        0.345
P15       -0.4285122E-01     -0.19233      0.03461      1.533          P12           -0.08265     -0.08685     0.59097        0.593
P3          28.65156          0.30061     11.10859      6.652          P13           -0.02456     -0.02847     0.71924        0.063
P6         -0.9103294        -0.28911      0.39362      5.349          P14           -0.10588     -0.10525     0.52889        0.874
P20       -0.3115409E-01     -0.32165      0.01529      4.152          P18            0.05543      0.03931     0.26910        0.121
P7          25.91020          0.14542     19.66282      1.736          P19            0.05998      0.04564     0.30987        0.163
(CONSTANT) -54.86019                                                   P21           -0.05080     -0.00294     0.00180        0.001
                                                                       P24           -0.10649     -0.00294     0.00041        0.001
                                                                       R1             0.03246      0.03526     0.63142        0.097
                                                                       R4             0.01687      0.02038     0.78093        0.032
                                                                       R6            -0.02889     -0.03375     0.73061        0.089
                                                                       R7            -0.18589     -0.10279     0.16363        0.833
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE 1129
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                          REGRESSION LIST  7
DEPENDENT VARIABLE..    C112

                                                  SUMMARY TABLE

VARIABLE                                MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                BETA

P23                                       0.35480   0.12588   0.12588    0.35480    0.9601822E-02         1.51040
R2                                        0.41731   0.17415   0.04827    0.19150     4.391505             0.09830
R3                                        0.47279   0.22353   0.04938    0.15261     5.284830             0.13459
P22                                       0.51121   0.26133   0.03781    0.34397    0.4251069E-02         0.66681
JUR                                       0.53563   0.28690   0.02557   -0.20377    -9.076888            -0.27024
P16                                       0.59188   0.35033   0.06343   -0.20760   -0.4111044E-01        -0.36241
R5                                        0.60039   0.36047   0.01014   -0.21839    -7.751100            -0.14573
P17                                       0.60819   0.36989   0.00943   -0.08356    0.3344622E-01         0.66858
P15                                       0.63030   0.39728   0.02738   -0.10538   -0.4483384E-01        -0.20123
P3                                        0.64180   0.41191   0.01464    0.17342     34.00031             0.35696
P6                                        0.65429   0.42809   0.01618   -0.09464    -1.136780            -0.36103
P20                                       0.67309   0.45304   0.02495   -0.02429   -0.1431508            -1.47798
P7                                        0.68177   0.46481   0.01176    0.07934     10.14585             0.05694
P14                                       0.68610   0.47074   0.00593   -0.19076   -0.5970769E-01        -0.15894
R7                                        0.69100   0.47748   0.00674    0.26017    -28.64611            -0.28018
P12                                       0.69374   0.48128   0.00380   -0.12734   -0.6842597E-02        -0.07492
P1                                        0.69624   0.48475   0.00347   -0.10595   -0.1440902E-02        -0.19385
P9                                        0.69834   0.48768   0.00293    0.06291     184.4629             0.76233
P10                                       0.70278   0.49390   0.00622   -0.09103    0.3299382E-01         0.66755
P4                                        0.70437   0.49613   0.00223    0.03236    0.2484541E-03         0.10420
P11                                       0.70601   0.49845   0.00232    0.07186    0.2963061E-02         0.03014
P21                                       0.70728   0.50024   0.00179    0.33518   -0.5842656E-02        -1.65914
P18                                       0.70855   0.50205   0.00181   -0.02480    0.1177146E-01         0.17734
P13                                       0.70990   0.50396   0.00191   -0.06683   -0.2853123E-03        -0.07345
R1                                        0.71086   0.50533   0.00137   -0.13116    0.8331819             0.02021
P8                                        0.71122   0.50583   0.00050   -0.01790     115.0751             0.40980
P19                                       0.71252   0.50768   0.00185   -0.02705   -0.5722867E-01        -0.42665
P2                                        0.71299   0.50835   0.00067    0.14789     3.687520             0.07764
R6                                        0.71346   0.50903   0.00068   -0.07562    -1.517771            -0.03682
(CONSTANT)                                                                           -102.3506
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE 1138
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                          REGRESSION LIST  8

DEPENDENT VARIABLE..     C121

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P19

                                                                                                                        F            P
MULTIPLE R              0.75292         ANALYSIS OF VARIANCE      DF       SUM OF SQUARES        MEAN SQUARE          12.07066     0.0000
R SQUARE                0.56689         REGRESSION                 9.         27335.85410         3037.31712
ADJUSTED R SQUARE       0.51992         RESIDUAL                  83.         20885.12429          251.62800
STANDARD ERROR         15.86279

----------------- VARIABLES IN THE EQUATION ------------------           ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B              BETA      STD ERROR B        F      VARIABLE       BETA IN       PARTIAL     TOLERANCE           F

JUR             -17.75106        -0.36851         4.45025     15.910      P1           0.01496       0.01644      0.52299         0.022
P23             0.2281954E-01     2.50300         0.00893      6.530      P2           0.13997       0.14047      0.43616         1.650
P8              -271.2811        -0.67364       110.40698      6.037      P4          -0.06005      -0.06098      0.44659         0.306
P22            -0.2054228E-01    -2.24681         0.00897      5.248      P6           0.03169       0.03280      0.46400         0.088
P3               23.85584         0.17464        10.39276      5.269      P9          -0.00738      -0.00698      0.38682         0.004
P5              0.7109209         0.17439         0.30249      5.523      P10         -0.09493      -0.07600      0.27757         0.476
P13            -0.1028930E-02    -0.18469         0.00044      5.441      P11         -0.01849      -0.02277      0.65687         0.043
P7               50.57685         0.19793        23.34871      4.692      P12         -0.04956      -0.06423      0.72756         0.340
P19             0.1044207         0.54282         0.05369      3.782      P14         -0.09625      -0.11953      0.66801         1.189
(CONSTANT)      -18.33315                                                 P15          0.04263       0.03702      0.32664         0.113
                                                                          P16         -0.14636      -0.14710      0.43752         1.814
                                                                          P17         -0.10819      -0.08392      0.26059         0.582
                                                                          P18         -0.10803      -0.08847      0.29047         0.647
                                                                          P20         -0.06279      -0.06098      0.40851         0.306
                                                                          P21          0.67237       0.04700      0.00212         0.182
                                                                          P24          1.41487       0.04702      0.00048         0.182
                                                                          R1          -0.10272      -0.13628      0.76235         1.552
                                                                          R2           0.00865       0.01203      0.83775         0.012
                                                                          R3           0.05962       0.08775      0.93804         0.636
                                                                          R4           0.05203       0.07598      0.92365         0.476
                                                                          R5          -0.05737      -0.08373      0.92239         0.579
                                                                          R6           0.01663       0.02420      0.91716         0.048
                                                                          R7          -0.10935      -0.06811      0.16801         0.382
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                     08/25/80        PAGE 1157
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * * *      VARIABLE LIST   1
                                                                                                                      REGRESSION LIST  8
DEPENDENT VARIABLE..     C121

                                                          SUMMARY TABLE

VARIABLE                                   MULTIPLE R   R SQUARE   RSQ CHANGE   SIMPLE R           B                    BETA

JUR                                          0.54570    0.29779    0.29779    -0.54570      -11.28432                 -0.23426
P23                                          0.61168    0.37415    0.07636     0.35568       0.2234137E-01             2.45055
P8                                           0.65911    0.43443    0.06028    -0.47003      -74.02520                  -0.18382
P22                                          0.68283    0.46625    0.03182     0.34388      -0.1965473E-01            -2.14974
P3                                           0.70248    0.49347    0.02722     0.00429       13.03782                   0.09545
P5                                           0.71559    0.51207    0.01860     0.20215       0.4344900                  0.10658
P13                                          0.73257    0.53666    0.02459    -0.32057      -0.1614283E-02            -0.28976
P7                                           0.73970    0.54715    0.01049     0.22178       57.06071                   0.22331
P19                                          0.75292    0.56689    0.01973    -0.38241      -0.3507808E-02            -0.01824
P16                                          0.75912    0.57626    0.00937     0.13909      -0.1872163E-01            -0.11508
R1                                           0.76423    0.58405    0.00779    -0.25412      -9.984848                  -0.16891
P15                                          0.76724    0.58866    0.00461     0.18272       0.6368331E-01              0.19931
R5                                           0.77042    0.59355    0.00489    -0.01500      -8.961617                  -0.11749
P1                                           0.77469    0.60015    0.00660     0.25161       0.2866287E-02              0.26888
P2                                           0.78500    0.61623    0.01608    -0.18677       25.38018                   0.37263
P14                                          0.78654    0.61865    0.00242    -0.32499      -0.6526589E-01            -0.12114
P10                                          0.78777    0.62059    0.00194     0.09372       0.2994251E-01              0.42243
P11                                          0.78983    0.62384    0.00325     0.11079      -0.1916664E-01            -0.13593
R7                                           0.79092    0.62555    0.00172     0.24312      -20.18650                  -0.13768
P4                                           0.79170    0.62678    0.00123     0.29486      -0.4982030E-03            -0.14570
P9                                           0.79272    0.62840    0.00162     0.43278      [illegible]93.5180          0.55766
P20                                          0.79530    0.63251    0.00410     0.31793      [illegible]08304E-01      -0.61974
R6                                           0.79585    0.63338    0.00087     0.11539      [illegible]75510          -0.03004
P17                                          0.79622    0.63397    0.00059     0.08379       0.1450346E-01              0.20216
P12                                          0.79653    0.63445    0.00048    -0.10879      -0.3978968E-02            -0.03038
R2                                           0.79661    0.63459    0.00014    -0.08018       0.9181727                  0.01433
P18                                          0.79667    0.63469    0.00010     0.26364       0.2231142E-02              0.02344
(CONSTANT)                                                                                 -88.92675
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80         PAGE 1166
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  9
DEPENDENT VARIABLE..     C130

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P19

MULTIPLE R            0.69225          ANALYSIS OF VARIANCE      DF        SUM OF SQUARES         MEAN SQUARE            F           P
R SQUARE              0.47921          REGRESSION                 9.          9056.43429          1006.27048         8.48602    0.0000
ADJUSTED R SQUARE     0.42274          RESIDUAL                  83.          9842.11696           118.57972
STANDARD ERROR       10.88943

------------------ VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE             B              BETA      STD ERROR B        F        VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

JUR             -13.04686        -0.43265        3.58728     13.228       P3            0.06387      0.07965      0.81006      0.524
P23             0.1152293E-01     2.01893        0.00641      3.235       P4            0.04058      0.03679      0.42789      0.111
P2               20.42426         0.47899        6.61277      9.540       P5           -0.02452     -0.03192      0.88285      0.084
P1              0.2181983E-02     0.32696        0.00099      4.899       P6            0.04632      0.04955      0.59612      0.202
R5              -8.688424        -0.18195        3.90665      4.946       P7            0.07357      0.07765      0.58007      0.497
P8             -125.5458         -0.49798       75.36710      2.775       P9           -0.01742     -0.01500      0.38584      0.018
P14            -0.6007336E-01    -0.17812        0.03135      3.672       P10           0.01847      0.01225      0.22884      0.012
P22            -0.1034173E-01    -1.80682        0.00641      2.601       P11           0.01136      0.01335      0.71895      0.015
P19             0.4414578E-01     0.36658        0.03452      1.636       P12           0.04184      0.05249      0.81970      0.227
(CONSTANT)      15.88869                                                  P13          -0.02604     -0.03275      0.82361      0.088
                                                                          P15           0.06288      0.04944      0.32193      0.201
                                                                          P16           0.00059      0.00044      0.29084      0.000
                                                                          P17           0.03585      0.02355      0.22461      0.045
                                                                          P18          -0.06584     -0.06569      0.51828      0.355
                                                                          P20          -0.06126     -0.05109      0.36230      0.215
                                                                          P21           0.03090      0.00174      0.00165      0.000
                                                                          P24           0.06499      0.00174      0.00037      0.000
                                                                          R1           -0.03640     -0.04430      0.77118      0.161
                                                                          R2           -0.02937     -0.03918      0.92635      0.126
                                                                          R3            0.03160      0.04187      0.91415      0.144
                                                                          R4           -0.04303     -0.05648      0.89753      0.262
                                                                          R6            0.07408      0.09555      0.86644      0.756
                                                                          R7           -0.07411     -0.04159      0.16405      0.142
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                      08/25/80        PAGE 1187
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  9
DEPENDENT VARIABLE..     C130

                                                  SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                      BETA

JUR                                          0.46583    0.21700    0.21700    -0.46583    -7.285253                  -0.24159
P23                                          0.56788    0.32249    0.10549     0.39150     0.1043368E-01              1.82808
P2                                           0.60046    0.36055    0.03806    -0.07964     22.89909                   0.53703
P1                                           0.62936    0.39609    0.03554     0.19778     0.1601144E-02              0.23992
R5                                           0.64688    0.41845    0.02235    -0.13114    -9.523512                  -0.19943
P8                                           0.66429    0.44129    0.02284    -0.34386     9.075658                   0.03600
P14                                          0.67483    0.45539    0.01410    -0.33802    -0.5410346E-01             -0.16041
P22                                          0.68480    0.46895    0.01356     0.38481    -0.3017196E-02             -0.52714
P19                                          0.69225    0.47921    0.01026    -0.27084    -0.5800720E-01             -0.48168
R6                                           0.69568    0.48397    0.00475     0.16980     4.970756                   0.13432
P3                                           0.69881    0.48833    0.00436     0.02334     15.69975                   0.18359
P12                                          0.70100    0.49141    0.00308    -0.02701     0.1119272E-01              0.13650
R3                                           0.70412    0.49578    0.00438     0.03601     3.184216                   0.09032
P18                                          0.70629    0.49884    0.00305     0.11906    -0.1082951E-01             -0.18172
P7                                           0.71502    0.51126    0.01242     0.10891     34.55365                   0.21601
P10                                          0.71972    0.51799    0.00673     0.06240     0.7565911E-01              1.70503
P20                                          0.72545    0.52628    0.00829     0.22242    -0.2174751                  -2.50094
P9                                           0.74465    0.55450    0.02822     0.33899     316.9651                   1.45904
P4                                           0.74859    0.56039    0.00588     0.25661     0.3328648E-03              0.15550
P16                                          0.75113    0.56420    0.00381     0.05603     0.2728409E-01              0.26790
R7                                           0.75241    0.56612    0.00193     0.27720    -12.91024                  -0.14065
P17                                          0.75342    0.56764    0.00151     0.06152    -0.1929361E-01             -0.42958
P11                                          0.75539    0.57062    0.00298     0.16141     0.9650784E-02              0.10933
P15                                          0.75617    0.57179    0.00117     0.15871     0.1900843E-01              0.09503
P6                                           0.75725    0.57343    0.00165    -0.07887    -0.1932052                  -0.06834
P21                                          0.75811    0.57473    0.00129     0.37722    -0.2911502E-02             -0.92089
P5                                           0.75870    0.57562    0.00090     0.12367    -0.1019561                  -0.03995
R2                                           0.75879    0.57576    0.00014    -0.05631    -0.8436047                  -0.02103
P13                                          0.75888    0.57590    0.00014    -0.14152     0.5864277E-04              0.01681
(CONSTANT)                                                                                -125.8459
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1195
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST 10
DEPENDENT VARIABLE..    C139

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P1

MULTIPLE R            0.63785          ANALYSIS OF VARIANCE    DF      SUM OF SQUARES      MEAN SQUARE          F          P
R SQUARE              0.40685          REGRESSION              8.        4639.83875        579.97984        7.20210    0.0000
ADJUSTED R SQUARE     0.35036          RESIDUAL               84.        6764.45730         80.52925
STANDARD ERROR        8.97381

----------------- VARIABLES IN THE EQUATION ------------------         ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B           BETA     STD ERROR B        F          VARIABLE      BETA IN     PARTIAL   TOLERANCE          F

JUR           -11.32767       -0.48356       2.61835      18.717        P2           0.21184     0.11950     0.18877      1.203
R5            -6.856724       -0.18484       3.29376       4.334        P3           0.04366     0.04182     0.54401      0.145
P8            -50.26959       -0.25668      20.61101       5.949        P4           0.07956     0.06647     0.41412      0.368
P6            0.3030721        0.13801       0.21013       2.080        P5          -0.00916    -0.01139     0.91712      0.011
P16          -0.1725350E-01   -0.21809       0.00887       3.783        P7           0.07870     0.08524     0.69583      0.608
R4            -3.405465       -0.11175       2.63979       1.664        P9           0.13932     0.11407     0.39762      1.094
P11           0.8379385E-02    0.12220       0.00616       1.853        P10          0.15450     0.08643     0.18563      0.625
P1            0.7287135E-03    0.14057       0.00056       1.669        P12          0.06101     0.06918     0.76257      0.399
(CONSTANT)     15.26986                                                 P13          0.02193     0.02708     0.90516      0.061
                                                                        P14          0.03662     0.03827     0.64775      0.122
                                                                        P15          0.04067     0.03586     0.46124      0.107
                                                                        P17          0.07253     0.03892     0.17077      0.126
                                                                        P18          0.09891     0.08979     0.48877      0.675
                                                                        P19          0.18851     0.05592     0.05220      0.260
                                                                        P20          0.13642     0.09540     0.29003      0.762
                                                                        P21          0.03846     0.04713     0.89075      0.185
                                                                        P22          0.04259     0.05220     0.89105      0.227
                                                                        P23          0.04734     0.05786     0.88595      0.279
                                                                        P24          0.04193     0.05135     0.88967      0.219
                                                                        R1          -0.04039    -0.04535     0.74791      0.171
                                                                        R2          -0.05317    -0.06662     0.93122      0.370
                                                                        R3          -0.00203    -0.00245     0.86058      0.000
                                                                        R6           0.08655     0.10235     0.82957      0.879
                                                                        R7           0.01578     0.01978     0.93207      0.032
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                    08/25/80        PAGE 1216
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                      REGRESSION LIST 10
DEPENDENT VARIABLE..    C139

                                              SUMMARY TABLE

VARIABLE                              MULTIPLE R   R SQUARE   RSQ CHANGE   SIMPLE R          B                  BETA

JUR                                    0.53427     0.28545    0.28545     -0.53427      -7.854509            -0.33530
R5                                     0.55933     0.31285    0.02741     -0.09985      -6.397358            -0.17246
P8                                     0.57945     0.33576    0.02291     -0.34327      -14.57738            -0.07443
P6                                     0.59735     0.35683    0.02107      0.02435      0.1993227             0.09077
P16                                    0.60938     0.37135    0.01452      0.17400      0.1233169E-02         0.01559
R4                                     0.61996     0.38435    0.01300     -0.04727      -1.802026            -0.06241
P11                                    0.62854     0.39506    0.01072      0.21201      0.1117256E-01         0.16293
P1                                     0.63785     0.40685    0.01179      0.32243      0.1037751E-02         0.20018
P2                                     0.64445     0.41532    0.00847     -0.25300       7.385530             0.22297
P7                                     0.64898     0.42117    0.00585      0.11317       24.76967             0.19933
P10                                    0.65494     0.42895    0.00778      0.16161      0.5206464E-01         1.51041
R6                                     0.65910     0.43441    0.00546      0.17063       3.448358             0.11995
P17                                    0.66346     0.44017    0.00577      0.15239     -0.2521448E-01        -0.72270
P5                                     0.66502     0.44225    0.00207      0.07405     -0.1984350            -0.10009
P15                                    0.66611     0.44371    0.00146      0.19703      0.8768566E-02         0.05643
P9                                     0.66723     0.44519    0.00148      0.37299       194.9271             1.15507
P20                                    0.67959     0.46184    0.01664      0.28407     -0.1102165            -1.63162
P19                                    0.68131     0.46418    0.00234     -0.23972     -0.2880953E-01        -0.30796
P3                                     0.68281     0.46624    0.00206      0.03222       6.193996             0.09324
P12                                    0.68467     0.46878    0.00254     -0.06774      0.4656033E-02         0.07310
P23                                    0.68556     0.46999    0.00121      0.18635      0.4218032E-02         0.95136
R7                                     0.68893     0.47462    0.00463      0.06352      -14.31637            -0.20078
P21                                    0.69169     0.47844    0.00382      0.18788     -0.1721554E-02        -0.70096
R3                                     0.69257     0.47965    0.00121      0.06149       1.587187             0.05796
P4                                     0.69337     0.48076    0.00111      0.22735     -0.1260346E-03        -0.07579
P13                                    0.69383     0.48140    0.00064     -0.12544      0.1253751E-03         0.04628
P18                                    0.69428     0.48203    0.00063      0.23655     -0.2995587E-02        -0.06471
P14                                    0.69466     0.48256    0.00052     -0.21865      0.9421062E-02         0.03596
(CONSTANT)                                                                          -63.34238
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                                  08/25/80      PAGE 1224
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *   M U L T I P L E   R E G R E S S I O N   * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST 11
DEPENDENT VARIABLE..    C144

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P5


MULTIPLE R              0.68315           ANALYSIS OF VARIANCE    DF       SUM OF SQUARES       MEAN SQUARE            F         P
R SQUARE                0.46669           REGRESSION               8.        190020.57698       23752.57212       9.18844    0.0000
ADJUSTED R SQUARE       0.41590           RESIDUAL                84.        217144.17408        2585.04969
STANDARD ERROR         50.84338


----------------- VARIABLES IN THE EQUATION ------------------           ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B             BETA      STD ERROR B         F          VARIABLE        BETA IN       PARTIAL    TOLERANCE          F

P23          0.1290144          4.86995         0.03731      11.955          P1             0.01347       0.01155      0.39257        0.011
P22         -0.2109112         -7.93873         0.07463       7.988          P2             0.03899       0.02861      0.28713        0.068
JUR          -46.04608         -0.32897        13.91243      10.954          P3             0.07356       0.08724      0.75023        0.637
P16         -0.1683942         -0.35623         0.05582       9.100          P6             0.03345       0.04130      0.81298        0.142
P21          0.4968345E-01      3.38557         0.02491       3.979          P7            -0.02772      -0.03658      0.92893        0.111
R4            28.87993          0.15860        14.73895       3.839          P8             0.06392       0.07025      0.64418        0.412
P4           0.1750004E-02      0.17613         0.00110       2.520          P9            -0.06820      -0.04367      0.21865        0.159
P5            1.368037          0.11548         0.97404       1.973          P10            0.08706       0.07009      0.34566        0.410
(CONSTANT)    10.96325                                                     P11           -0.03681      -0.04618      0.83933        0.177
                                                                           P12           -0.02730      -0.03397      0.82557        0.096
                                                                           P13            0.03697       0.04779      0.89086        0.190
                                                                           P14           -0.08480      -0.09691      0.69650        0.787
                                                                           P15            0.07028       0.07259      0.56893        0.440
                                                                           P17            0.02901       0.02340      0.34692        0.045
                                                                           P18           -0.03774      -0.03535      0.46788        0.104
                                                                           P19            0.05411       0.06503      0.77031        0.353
                                                                           P20           -0.00562       0.00322      0.17526        0.001
                                                                           P24       999999.99999  99999.99999     -0.00000    99999.999
                                                                           R1             0.05125       0.06321      0.81122        0.333
                                                                           R2            -0.03662      -0.04745      0.89537        0.187
                                                                           R3             0.06348       0.08187      0.88691        0.560
                                                                           R5             0.02913       0.03645      0.83492        0.110
                                                                           R6            -0.10361      -0.13320      0.88147        1.499
                                                                           R7             0.03229       0.01754      0.15742        0.026
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC--1=SEP                        08/25/80        PAGE 1242
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *   M U L T I P L E   R E G R E S S I O N   * * * * * * * * * * * * *     VARIABLE LIST  1
                                                                                                                     REGRESSION LIST 11
DEPENDENT VARIABLE..      C144

                                                           SUMMARY TABLE

VARIABLE                                         MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B                     BETA

P23                                                0.44129   0.19474    0.19474     0.44129     0.1251796                 4.72520
P22                                                0.52854   0.27935    0.08461     0.41712    -0.1997934                -7.52025
JUR                                                0.56665   0.32110    0.04174    -0.23945    -43.29105                 -0.30929
P16                                                0.62040   0.38489    0.06380    -0.18344    -0.1939770                -0.41035
P21                                                0.64536   0.41650    0.03160     0.41294     0.4495161E-01             3.06313
R4                                                 0.66370   0.44049    0.02400     0.17201     22.98671                  0.12623
P4                                                 0.67392   0.45417    0.01368     0.20646     0.1789680E-02             0.18012
P5                                                 0.68315   0.46669    0.01252     0.20104     1.148436                  0.09695
R6                                                 0.69004   0.47615    0.00946    -0.04468    -16.68837                 -0.09716
P14                                                0.69342   0.48083    0.00468    -0.26147    -0.2733265                -0.17459
P10                                                0.69679   0.48552    0.00469    -0.01149     0.1137616                 0.55233
P11                                                0.70219   0.49307    0.00755     0.04589    -0.2908530E-01            -0.07099
R2                                                 0.70502   0.49705    0.00399    -0.16564    -19.66156                 -0.10561
P2                                                 0.70716   0.50008    0.00302     0.15079     16.68345                  0.08429
P17                                                0.70867   0.50221    0.00214    -0.04800    -0.3397917E-01            -0.16299
P3                                                 0.70947   0.50335    0.00114     0.00322     41.87618                  0.10550
P6                                                 0.71139   0.50608    0.00273    -0.07863    -1.260490                 -0.09606
R5                                                 0.71219   0.50722    0.00114    -0.01968    -10.46507                 -0.04721
P9                                                 0.71293   0.50826    0.00105     0.25459    -1.124326                 -0.00112
P8                                                 0.71307   0.50847    0.00021    -0.11796     322.9460                  0.27598
P19                                                0.71368   0.50934    0.00087    -0.10581    -0.1603209                -0.28681
P1                                                 0.71382   0.50954    0.00020    -0.14388     0.8021122E-03             0.02589
P15                                                0.71392   0.50969    0.00014     0.14755     0.2753639E-01             0.02966
P18                                                0.71398   0.50977    0.00008    -0.03626     0.4983799E-02             0.01802
P20                                                0.71404   0.50985    0.00008     0.15623    -0.4097532E-01            -0.10152
(CONSTANT)                                                                                   -101.6723
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                  08/25/80        PAGE 1253
ALL GRADE LEVELS COMBINED
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                           REGRESSION LIST 12
DEPENDENT VARIABLE..     C160

VARIABLE(S) ENTERED ON STEP NUMBER 11..     P19

MULTIPLE R            0.62607          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES       MEAN SQUARE           F          P
R SQUARE              0.39196          REGRESSION                11.          6803.94388         618.54035     4.74681    0.0000
ADJUSTED R SQUARE     0.30939          RESIDUAL                  81.         10554.81850         130.30640
STANDARD ERROR       11.41518

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B              BETA      STD ERROR B        F          VARIABLE       BETA IN      PARTIAL    TOLERANCE          F

P20         -0.7046087E-01      -0.84547        0.01586      19.732         P1            -0.02163     -0.01901     0.46992        0.029
P15         -0.2288662E-01      -0.11938        0.02948       0.603         P2             0.05546      0.04058     0.32552        0.132
P14          0.8572618E-01       0.26521        0.03407       6.331         P4            -0.05821     -0.03487     0.21823        0.097
P8            98.42251           0.40734      122.34049       0.647         P5             0.05478      0.06399     0.82975        0.329
R7            15.81703           0.17980        8.39511       3.550         P6            -0.04504     -0.03720     0.41496        0.111
P3            19.48953           0.23780        8.12512       5.754         P7             0.07536      0.05133     0.28205        0.211
P18          0.1846166E-01       0.32324        0.00778       5.624         P9            -0.32644     -0.08637     0.04257        0.601
R1            -5.437624         -0.15332        3.45762       2.473         P10            0.38471      0.07692     0.02430        0.476
P16         -0.4851364E-01      -0.49704        0.01703       8.119         P11           -0.04530     -0.03766     0.42038        0.114
P17          0.3576553E-01       0.83090        0.01263       8.024         P12            0.01378      0.01443     0.66688        0.017
P19         -0.1021432          -0.88499        0.06287       2.640         P13           -0.03886     -0.04449     0.79694        0.159
(CONSTANT)  -42.17530                                                       P21           -0.17448     -0.10210     0.20821        0.843
                                                                            P22           -0.17519     -0.09786     0.18974        0.774
                                                                            P23           -0.16309     -0.08744     0.17478        0.616
                                                                            P24           -0.17383     -0.09788     0.19278        0.774
                                                                            JUR           -0.03585     -0.03132     0.46407        0.079
                                                                            R2            -0.02987     -0.03309     0.74618        0.088
                                                                            R3            -0.03455     -0.04124     0.86626        0.136
                                                                            R4            -0.05831     -0.07011     0.87919        0.395
                                                                            R5             0.01777      0.02101     0.84927        0.035
                                                                            R6             0.10017      0.12060     0.88144        1.181
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80       PAGE 1268
ALL GRADE LEVELS COMBINED
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST 12
DEPENDENT VARIABLE..    C160

                                                    SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                 BETA

P20                                         0.34237    0.11722   0.11722    -0.34237   -0.9679605E-02        -0.11615
P15                                         0.38850    0.15094   0.03372    -0.33248   -0.2971898E-01        -0.15502
P14                                         0.41902    0.17558   0.02465     0.08527    0.8064616E-01         0.24949
P8                                          0.45704    0.20889   0.03330     0.02600    15.63313              0.06470
R7                                          0.49551    0.24553   0.03665     0.06297    31.46906              0.35771
P3                                          0.51546    0.26570   0.02017     0.23053    18.82994              0.22975
P18                                         0.54199    0.29376   0.02806    -0.10948    0.9921669E-02         0.17371
R1                                          0.55976    0.31333   0.01957    -0.08501   -5.307453             -0.14965
P16                                         0.57596    0.33173   0.01840    -0.33135   -0.6365515E-01        -0.65217
P17                                         0.61004    0.37215   0.04042    -0.27891    0.2929484E-01         0.68057
P19                                         0.62607    0.39196   0.01981    -0.05974   -0.5296242E-01        -0.45888
R6                                          0.63309    0.40080   0.00884     0.09793    3.397033              0.09578
P21                                         0.63785    0.40685   0.00605    -0.03584   -0.9529565E-03        -0.31450
P10                                         0.64117    0.41110   0.00425    -0.31229    0.2353705E-02         0.05534
P7                                          0.64432    0.41515   0.00405     0.20527    22.37475              0.14594
JUR                                         0.64596    0.41727   0.00212     0.25467   -3.246998             -0.11235
P9                                          0.64906    0.42128   0.00402    -0.33081   -121.2397             -0.58231
R5                                          0.65060    0.42328   0.00200    -0.07931    1.461357              0.03193
P5                                          0.65152    0.42447   0.00119    -0.06686    0.1023175             0.04183
P1                                          0.65224    0.42542   0.00094    -0.21421    0.3848139E-03         0.06017
R4                                          0.65258    0.42586   0.00044    -0.08686   -1.149321             -0.03057
P11                                         0.65296    0.42635   0.00050    -0.20699   -0.3556851E-02        -0.04204
P6                                          0.65321    0.42668   0.00033    -0.00839   -0.8577880E-01        -0.03166
P13                                         0.65353    0.42710   0.00042    -0.07300   -0.8086725E-04        -0.02419
P23                                         0.65365    0.42726   0.00015    -0.01883    0.6997396E-03         0.12792
(CONSTANT)                                                                            -33.18642
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC--1=SEP                        08/25/80        PAGE 1282
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                          REGRESSION LIST  1
DEPENDENT VARIABLE..     C161

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P12

MULTIPLE R              0.55563            ANALYSIS OF VARIANCE    DF     SUM OF SQUARES      MEAN SQUARE          F           P
R SQUARE                0.30872            REGRESSION               7.         292.00773         41.71539       5.42295     0.0000
ADJUSTED R SQUARE       0.25179            RESIDUAL                85.         653.85182          7.69237
STANDARD ERROR          2.77351

------------------ VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B             BETA      STD ERROR B        F     VARIABLE      BETA IN     PARTIAL    TOLERANCE          F

P2             -2.863832         -0.30022         0.95431      9.006   P1            0.07628     0.05183      0.31917        0.226
P9            -13.28417          -0.27333         5.05725      6.900   P3           -0.01617    -0.01630      0.70224        0.022
R6             -1.464748         -0.17692         0.78640      3.469   P4           -0.02257    -0.01463      0.29060        0.018
P13           -0.1653614E-03     -0.21193         0.00007      4.943   P5           -0.06200    -0.07010      0.88378        0.415
R2              1.716880          0.19133         0.87312      3.867   P6           -0.10121    -0.11573      0.90385        1.140
R7             -2.720721         -0.13249         1.99646      1.857   P7           -0.05226    -0.06027      0.91935        0.306
P12            0.2035609E-02      0.11097         0.00170      1.427   P8           -0.02702    -0.02316      0.50778        0.045
(CONSTANT)     38.91870                                                P10          -0.00940    -0.00840      0.55209        0.006
                                                                       P11           0.03515     0.03667      0.75248        0.113
                                                                       P14           0.05585     0.06271      0.87144        0.332
                                                                       P15          -0.07707    -0.07970      0.73944        0.537
                                                                       P16          -0.08817    -0.06430      0.36766        0.349
                                                                       P17           0.02703     0.02398      0.54413        0.048
                                                                       P18          -0.00749    -0.00674      0.55943        0.004
                                                                       P19           0.01542     0.01505      0.65881        0.019
                                                                       P20          -0.13310    -0.05363      0.11224        0.242
                                                                       P21           0.13560     0.07615      0.21804        0.490
                                                                       P22           0.17268     0.09223      0.19719        0.721
                                                                       P23           0.17308     0.08874      0.18170        0.667
                                                                       P24           0.15563     0.08392      0.20101        0.596
                                                                       JUR          -0.03181    -0.02541      0.44102        0.054
                                                                       R1           -0.05304    -0.05610      0.77343        0.265
                                                                       R3            0.04575     0.04730      0.73880        0.188
                                                                       R4            0.03517     0.03950      0.87183        0.131
                                                                       R5           -0.03695    -0.04064      0.83602        0.139
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE 1302
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                               REGRESSION LIST  1
DEPENDENT VARIABLE..     C161

                                                             SUMMARY TABLE

VARIABLE                                         MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                    BETA

P2                                                0.28550    0.08151    0.08151   -0.28550     -3.823143                 -0.40078
P9                                                0.45452    0.20659    0.12507   -0.25548     -1.737236                 -0.03574
R6                                                0.48255    0.23286    0.02627   -0.25033     -1.648142                 -0.19908
P13                                               0.50336    0.25337    0.02051   -0.17589     -0.1529914E-03            -0.19608
R2                                                0.53160    0.28260    0.02923    0.21724      0.8276691                 0.09224
R7                                                0.54508    0.29711    0.01452   -0.23171     -7.908359                 -0.38511
P12                                               0.55563    0.30872    0.01161   -0.00588      0.1266278E-02             0.06903
P6                                                0.56390    0.31798    0.00926   -0.04102     -0.1334607                 -0.21103
P7                                                0.56986    0.32474    0.00676    0.00628     -3.774476                  -0.10547
P22                                               0.57521    0.33087    0.00613   -0.18806      0.6542757E-02             5.10956
P21                                               0.58225    0.33902    0.00815   -0.19370     -0.2361045E-02            -3.33808
P23                                               0.59092    0.34918    0.01016   -0.19805     -0.1934520E-02            -1.51507
P18                                               0.59386    0.35267    0.00349    0.00231      0.6682708E-03             0.05012
P16                                               0.60093    0.36111    0.00844    0.09226     -0.3170120E-02            -0.13914
P17                                               0.60837    0.37011    0.00900    0.00934      0.4774831E-02             0.47521
P10                                               0.61264    0.37533    0.00522   -0.02426     -0.1888629E-02            -0.19025
P3                                                0.61654    0.38012    0.00479   -0.03068      1.648058                  0.08615
P15                                               0.61968    0.38401    0.00389   -0.11688     -0.8588622E-02            -0.19192
P20                                               0.62278    0.38785    0.00385   -0.21773     -0.6878761E-02            -0.35359
P1                                                0.62766    0.39396    0.00610    0.24202     -0.2451863E-03            -0.16423
P8                                                0.62948    0.39624    0.00228    0.06590    -39.47270                  -0.69986
P19                                               0.63451    0.40260    0.00636    0.07499      0.1896514E-01             0.70393
P5                                                0.63638    0.40498    0.00238   -0.20789     -0.3929415E-01            -0.06882
P4                                                0.63805    0.40711    0.00213   -0.19735     -0.6071540E-04            -0.12678
R1                                                0.63899    0.40831    0.00120    0.04006     -0.3937048                 -0.04756
P14                                               0.63913    0.40849    0.00018    0.02766      0.1433917E-02             0.01900
(CONSTANT)                                                                                     41.01417
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                             08/25/80        PAGE 1311
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  2

DEPENDENT VARIABLE..    C162

VARIABLE(S) ENTERED ON STEP NUMBER  9..    R1

MULTIPLE R            0.55955          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE              0.31309          REGRESSION                9.         148.47056            16.49673         4.20346    0.0002
ADJUSTED R SQUARE     0.23861          RESIDUAL                 83.         325.73830             3.92456
STANDARD ERROR        1.98105

----------------- VARIABLES IN THE EQUATION -----------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE           B             BETA      STD ERROR B        F        VARIABLE     BETA IN     PARTIAL    TOLERANCE         F

P20        -0.8607345E-02     -0.62487        0.00267      10.384      P1          -0.09151    -0.06031     0.29833        0.299
JUR        -0.5158651         -0.10799        0.65513       0.620      P3           0.05717     0.06328     0.84148        0.330
R6         -0.8427568         -0.14377        0.56608       2.216      P4           0.11512     0.06651     0.22932        0.364
P16        -0.1155552E-01     -0.71629        0.00346      11.155      P5           0.02195     0.02436     0.84651        0.049
P2          -2.463279         -0.36469        1.15193       4.573      P6          -0.08456    -0.08311     0.66348        0.570
P17         0.3598880E-02      0.50585        0.00151       5.656      P7          -0.00667    -0.00626     0.60597        0.003
P8          -11.21451         -0.28082        5.71937       3.845      P9           0.15145     0.03427     0.03518        0.096
P14         0.8496467E-02      0.15903        0.00627       1.834      P10         -0.17076    -0.03496     0.02879        0.100
R1         -0.8118080         -0.13849        0.60052       1.827      P11          0.00938     0.00770     0.46289        0.005
(CONSTANT)   38.05838                                                  P12         -0.03155    -0.03405     0.80015        0.095
                                                                       P13          0.05346     0.05643     0.76550        0.262
                                                                       P15         -0.08282    -0.06068     0.36882        0.303
                                                                       P18          0.00242     0.00199     0.46517        0.000
                                                                       P19          0.26920     0.05743     0.03126        0.271
                                                                       P21         -0.00445    -0.00468     0.75958        0.002
                                                                       P22         -0.00193    -0.00203     0.76048        0.000
                                                                       P23         -0.00204    -0.00213     0.75306        0.000
                                                                       P24         -0.00317    -0.00332     0.75757        0.001
                                                                       R2           0.07719     0.08452     0.82364        0.590
                                                                       R3           0.04651     0.04964     0.78233        0.203
                                                                       R4          -0.07296    -0.08222     0.87230        0.558
                                                                       R5          -0.06263    -0.06987     0.85480        0.402
                                                                       R7           0.01424     0.01550     0.81443        0.020
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1330
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *     VARIABLE LIST  1
                                                                                                                        REGRESSION LIST  2
DEPENDENT VARIABLE..     C162

                                                              SUMMARY TABLE

VARIABLE                                         MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                   BETA

P20                                               0.37697    0.14211    0.14211    -0.37697    -0.8882889E-02          -0.64488
JUR                                               0.40968    0.16784    0.02573     0.04608    -0.5397132              -0.11299
R6                                                0.42998    0.18489    0.01705    -0.16798    -0.4764155              -0.08127
P16                                               0.44825    0.20093    0.01604    -0.29266    -0.1064719E-01          -0.65999
P2                                                0.47952    0.22994    0.02901    -0.00665    -3.867892               -0.57265
P17                                               0.50386    0.25388    0.02394    -0.23208     0.3670608E-02           0.51593
P8                                                0.53417    0.28533    0.03146     0.08524   -36.98683                -0.92616
P14                                               0.54586    0.29797    0.01263    -0.08536     0.6580929E-02           0.12318
R1                                                0.55955    0.31309    0.01512    -0.00876    -0.1097929              -0.01873
R2                                                0.56391    0.31800    0.00491     0.17461     0.4541900               0.07149
P4                                                0.56916    0.32395    0.00595    -0.27870     0.7060496E-04           0.20822
R3                                                0.57480    0.33039    0.00644     0.09436     0.5325384               0.09536
P6                                                0.57926    0.33554    0.00515     0.01605    -0.8591423E-01          -0.19186
P3                                                0.58676    0.34429    0.00875     0.15562     2.048586                0.15123
P1                                                0.59118    0.34949    0.00520    -0.00924    -0.2097353E-03          -0.19840
P19                                               0.59641    0.35571    0.00622     0.05443     0.1438765E-01           0.75421
P15                                               0.59894    0.35873    0.00302    -0.16718    -0.3556092E-02          -0.11223
P11                                               0.59981    0.35977    0.00104    -0.13156     0.1058132E-02           0.07567
P13                                               0.60099    0.36119    0.00142    -0.00874     0.3152846E-04           0.05707
R7                                                0.60165    0.36199    0.00079    -0.05759     1.084834                0.07461
P21                                               0.60265    0.36319    0.00121    -0.06596    -0.2788468E-03          -0.55678
P22                                               0.60314    0.36377    0.00058    -0.06483     0.4518685E-03           0.49838
P5                                                0.60354    0.36426    0.00049    -0.04596     0.1195489E-01           0.02957
P18                                               0.60386    0.36465    0.00039    -0.21974    -0.4800238E-03          -0.05085
P10                                               0.60405    0.36488    0.00023    -0.26890    -0.1176615E-02          -0.16739
P9                                                0.60418    0.36504    0.00015    -0.31181    -3.892034               -0.11310
P7                                                0.60427    0.36514    0.00011     0.01689     0.5346383               0.02110
(CONSTANT)                                                                                    39.14201
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1340
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                      REGRESSION LIST  3
DEPENDENT VARIABLE..     C163

VARIABLE(S) ENTERED ON STEP NUMBER 10..     P2


MULTIPLE R           0.49097             ANALYSIS OF VARIANCE      DF        SUM OF SQUARES       MEAN SQUARE            F            P
R SQUARE             0.24105             REGRESSION                10.          129.88070          12.98807          2.60444      0.0085
ADJUSTED R SQUARE    0.14850             RESIDUAL                  82.          408.92495           4.98689
STANDARD ERROR       2.23313


------------------ VARIABLES IN THE EQUATION ------------------            ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B        F          VARIABLE        BETA IN      PARTIAL    TOLERANCE          F

P20        -0.7049323E-02      -0.48011        0.00261        7.318        P1             -0.13381     -0.08305      0.29233        0.563
JUR          -1.136627         -0.22323        0.74064        2.355        P4              0.08675      0.04682      0.22107        0.178
P3            4.267750          0.29557        1.86543        5.234        P5              0.00208      0.00220      0.84832        0.000
R1           -1.235880         -0.19779        0.68018        3.301        P7              0.00893      0.00813      0.62988        0.005
P14         0.7200674E-02       0.12644        0.00718        1.005        P8             -0.14486     -0.10295      0.38330        0.868
R6          -0.6397770         -0.10239        0.63858        1.004        P9             -0.18408     -0.03961      0.03514        0.127
P16        -0.8713358E-02      -0.50670        0.00392        4.946        P10            -0.31058     -0.06540      0.03366        0.348
P17         0.3982440E-02       0.52514        0.00179        4.948        P11            -0.08084     -0.06247      0.45319        0.317
P6          -0.1139233         -0.23867        0.06817        2.793        P12            -0.02199     -0.02087      0.68381        0.035
P2           -1.554844         -0.21596        1.30343        1.423        P13            -0.02423     -0.02494      0.80408        0.050
(CONSTANT)    32.46538                                                     P15             0.04319      0.02930      0.34942        0.070
                                                                           P18             0.04115      0.03204      0.46008        0.083
                                                                           P19            -0.14581     -0.09643      0.33194        0.760
                                                                           P21            -0.03784     -0.03803      0.76657        0.117
                                                                           P22            -0.03668     -0.03687      0.76669        0.110
                                                                           P23            -0.03655     -0.03652      0.75788        0.108
                                                                           P24            -0.03727     -0.03739      0.76403        0.113
                                                                           R2             -0.08433     -0.08330      0.74059        0.566
                                                                           R3              0.05162      0.05193      0.76816        0.219
                                                                           R4              0.01849      0.01921      0.81910        0.030
                                                                           R5              0.00787      0.00833      0.85126        0.006
                                                                           R7             -0.01189     -0.01234      0.81710        0.012
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                 08/25/80      PAGE 1357
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  3

DEPENDENT VARIABLE..     C163

                                                  SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                   BETA

P20                                         0.24230   0.05871   0.05871    -0.24230      0.8945700E-03            0.06093
JUR                                         0.30381   0.09230   0.03359    -0.04016     -1.385650                -0.27214
P3                                          0.34778   0.12095   0.02865     0.21865      4.655222                 0.32240
R1                                          0.37012   0.13699   0.01604    -0.08978     -1.109800                -0.17761
P14                                         0.39665   0.15733   0.02035    -0.02090      0.5547579E-02            0.09741
R6                                          0.41680   0.17372   0.01639    -0.12391     -0.8272547               -0.13239
P16                                         0.43154   0.18623   0.01251    -0.19757     -0.1116337E-01           -0.64918
P17                                         0.45298   0.20519   0.01896    -0.12394      0.7286110E-02            0.96077
P6                                          0.47737   0.22788   0.02269     0.03523     -0.1119686               -0.23457
P2                                          0.49097   0.24105   0.01317     0.01522     -2.541272                -0.35297
P8                                          0.49910   0.24910   0.00804     0.06803    -10.48388                 -0.24628
P1                                          0.50584   0.25587   0.00678    -0.04225     -0.1505198E-03           -0.13358
R2                                          0.51166   0.26179   0.00592     0.11312     -0.4960798               -0.07325
P11                                         0.51284   0.26301   0.00122    -0.13935     -0.8432975E-03           -0.05658
R3                                          0.51389   0.26409   0.00108     0.11136      0.1879508                0.03158
P9                                          0.51453   0.26474   0.00066    -0.21454    -17.71666                 -0.48299
P10                                         0.51597   0.26622   0.00148    -0.14913     -0.4735858E-02           -0.63207
P19                                         0.51790   0.26822   0.00199     0.05631      0.3427212E-02            0.16854
P5                                          0.51899   0.26935   0.00113    -0.06200      0.2007093E-01            0.04658
P21                                         0.51953   0.26991   0.00057    -0.05263      0.3136710E-04            0.05876
R7                                          0.52064   0.27107   0.00116    -0.05223      1.435341                 0.09261
P7                                          0.52127   0.27172   0.00065    -0.04458     -2.600193                -0.09627
P18                                         0.52289   0.27341   0.00169    -0.16038      0.1004482E-02            0.09982
P4                                          0.52314   0.27368   0.00027    -0.17827      0.1493373E-04            0.04132
P23                                         0.52343   0.27398   0.00031    -0.05743     -0.1684872E-03           -0.17483
P12                                         0.52359   0.27414   0.00016    -0.12489     -0.2334946E-03           -0.01686
(CONSTANT)                                                                              38.30457
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80        PAGE 1367
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  4
DEPENDENT VARIABLE..    C164

VARIABLE(S) ENTERED ON STEP NUMBER 10..    P1

MULTIPLE R             0.52017        ANALYSIS OF VARIANCE     DF       SUM OF SQUARES      MEAN SQUARE           F           P
R SQUARE               0.27058        REGRESSION               10.           161.45040         16.14504       3.04173      0.0025
ADJUSTED R SQUARE      0.18162        RESIDUAL                 82.           435.24297          5.30784
STANDARD ERROR         2.30388

----------------- VARIABLES IN THE EQUATION ------------------         ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE             B             BETA      STD ERROR B       F        VARIABLE        BETA IN      PARTIAL    TOLERANCE          F

P20         -0.5728203E-02     -0.37072        0.00268       4.567      P4              0.13677      0.07201      0.20218       0.422
JUR          -1.163272         -0.21710        0.75369       2.382      P7              0.03483      0.03217      0.62221       0.084
P3            4.676623          0.30777        1.93629       5.833      P8             -0.12062     -0.08807      0.38891       0.633
P5          -0.4854378E-01     -0.10704        0.04524       1.151      P9              0.28740      0.06130      0.03318       0.306
P16         -0.1237340E-01     -0.68375        0.00404       9.391      P10            -0.38756     -0.08238      0.03296       0.553
P2           -4.440453         -0.58607        1.70285       6.800      P11             0.02225      0.01752      0.45249       0.025
P14          0.5337314E-02      0.08906        0.00746       0.512      P12            -0.02295     -0.02202      0.67106       0.039
P17          0.3819662E-02      0.47862        0.00183       4.373      P13             0.02738      0.02897      0.81671       0.068
P6          -0.1491095         -0.29684        0.07047       4.478      P15             0.00123      0.00085      0.35461       0.000
P1          -0.2605697E-03     -0.21974        0.00020       1.653      P18             0.05542      0.04399      0.45951       0.157
(CONSTANT)   36.33035                                                   P19            -0.12393     -0.08388      0.33412       0.574
                                                                        P21            -0.00224     -0.00230      0.76694       0.000
                                                                        P22            -0.00218     -0.00223      0.76693       0.000
                                                                        P23             0.00026      0.00026      0.76046       0.000
                                                                        P24            -0.00157     -0.00161      0.76501       0.000
                                                                        R1             -0.03556     -0.03625      0.75781       0.107
                                                                        R2             -0.06915     -0.07351      0.82441       0.440
                                                                        R3              0.03237      0.03642      0.92327       0.108
                                                                        R4              0.01033      0.01153      0.90872       0.011
                                                                        R5              0.04515      0.04924      0.86747       0.197
                                                                        R6              0.00603      0.00668      0.89560       0.004
                                                                        R7              0.00938      0.00995      0.82231       0.008
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1385
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  4
DEPENDENT VARIABLE..    C164

                                                   SUMMARY TABLE

VARIABLE                                 MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA

P20                                      0.26027     0.06774   0.06774     -0.26027    -0.1451080E-01          -0.93912
JUR                                      0.33580     0.11276   0.04503     -0.05648     -1.322819              -0.24687
P3                                       0.36339     0.13205   0.01929      0.19278      5.490817               0.36136
P5                                       0.38164     0.14565   0.01360     -0.12885    -0.3974778E-01          -0.08765
P16                                      0.40087     0.16070   0.01505     -0.20581    -0.1052928E-01          -0.58185
P2                                       0.43028     0.18514   0.02444     -0.04440     -4.508171              -0.59501
P14                                      0.46080     0.21234   0.02720     -0.03477     0.8806802E-02          0.14695
P17                                      0.47148     0.22230   0.00996     -0.14600     0.4719371E-02          0.59136
P6                                       0.50583     0.25587   0.03357      0.02049    -0.1338792              -0.26652
P1                                       0.52017     0.27058   0.01471     -0.00463    -0.3461056E-03          -0.29187
P8                                       0.52558     0.27623   0.00566      0.07178    -0.9254425              -0.02066
R2                                       0.52916     0.28001   0.00377      0.06434    -0.6984657              -0.09800
P13                                      0.53281     0.28389   0.00388     -0.01484     0.6741009E-04          0.10877
P11                                      0.53522     0.28646   0.00257     -0.10423     0.1637177E-02          0.10438
P4                                       0.53774     0.28916   0.00270     -0.18414     0.2488712E-04          0.06543
R5                                       0.53869     0.29019   0.00103     -0.01227     0.5064802              0.05969
P9                                       0.53951     0.29107   0.00088     -0.20856      8.648623              0.22405
P15                                      0.54031     0.29194   0.00086     -0.06059    -0.1858809E-02          -0.05230
R7                                       0.54119     0.29289   0.00095     -0.04348     0.7812745              0.04790
R3                                       0.54181     0.29356   0.00067      0.04536     0.2243137              0.03581
P18                                      0.54221     0.29399   0.00044     -0.15891     0.7891712E-03          0.07453
P7                                       0.54259     0.29441   0.00041     -0.00581     -1.589650              -0.05593
P19                                      0.54293     0.29477   0.00036      0.05096    -0.3070924E-02          -0.14351
P21                                      0.54317     0.29504   0.00027     -0.03419    -0.1198460E-03          -0.21333
P23                                      0.54353     0.29543   0.00039     -0.03703     0.2032510E-03          0.20041
R4                                       0.54370     0.29561   0.00019      0.01154     0.1168716              0.01677
P12                                      0.54383     0.29575   0.00014     -0.10485    -0.2321242E-03          -0.01593
(CONSTANT)                                                                               33.96463
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80       PAGE 1397
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  5
DEPENDENT VARIABLE..    C165

VARIABLE(S) ENTERED ON STEP NUMBER 12..     P1


MULTIPLE R             0.56180         ANALYSIS OF VARIANCE      DF      SUM OF SQUARES       MEAN SQUARE            F          P
R SQUARE               0.31562         REGRESSION                12.         182.30719          15.19227          3.07451    0.0013
ADJUSTED R SQUARE      0.21296         RESIDUAL                  80.         395.30839           4.94135
STANDARD ERROR         2.22292


---------------- VARIABLES IN THE EQUATION ------------------        ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B           BETA      STD ERROR B      F        VARIABLE     BETA IN     PARTIAL    TOLERANCE        F

P20         -0.1417322E-01    -0.93230       0.00987      2.063       P4           0.14368     0.07579     0.19042       0.456
JUR         -0.8896589        -0.16875       0.77247      1.326       P8          -0.08823    -0.06490     0.37021       0.334
P5          -0.5029782E-01    -0.11273       0.04436      1.286       P10          0.01152     0.00205     0.02176       0.000
P3           5.051087          0.33786       1.88130      7.209       P11          0.06681     0.05422     0.45070       0.233
P14          0.1082799E-01     0.18364       0.00726      2.225       P12         -0.09044    -0.08950     0.67031       0.638
P9          15.60222           0.41081      19.41353      0.646       P13          0.04595     0.05012     0.81413       0.199
P2          -4.127998         -0.55376       1.67211      6.095       P15          0.12821     0.08687     0.31419       0.601
P16         -0.1020599E-01    -0.57322       0.00487      4.390       P18          0.03605     0.02262     0.26942       0.040
P6          -0.1480757        -0.29961       0.06815      4.722       P19         -0.10792    -0.07243     0.30824       0.417
P17          0.5161205E-02     0.65731       0.00221      5.449       P21          0.02817     0.02964     0.75724       0.069
P7           5.352909          0.19141       3.30131      2.629       P22          0.02680     0.02822     0.75865       0.063
P1          -0.2381341E-03    -0.20411       0.00020      1.408       P23          0.02954     0.03101     0.75384       0.076
(CONSTANT)  29.02188                                                  P24          0.02822     0.02967     0.75653       0.070
                                                                      R1          -0.04373    -0.04573     0.74820       0.166
                                                                      R2           0.00513     0.00561     0.82093       0.002
                                                                      R3           0.04577     0.05294     0.91562       0.222
                                                                      R4          -0.05742    -0.06615     0.90821       0.347
                                                                      R5           0.08654     0.09721     0.86350       0.754
                                                                      R6          -0.03648    -0.04154     0.88733       0.137
                                                                      R7           0.02444     0.02662     0.81214       0.056
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                   08/25/80       PAGE 1413
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  5
DEPENDENT VARIABLE..    C165

                                                   SUMMARY TABLE

VARIABLE                                    MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R            B                 BETA

P20                                          0.28116    0.07905    0.07905   -0.28116    -0.2096363E-01         -1.37897
JUR                                          0.35341    0.12490    0.04585   -0.04787    -0.9002441             -0.17076
P5                                           0.38176    0.14574    0.02084   -0.16271    -0.4961897E-01         -0.11121
P3                                           0.40511    0.16412    0.01838    0.19039     5.087871               0.34032
P14                                          0.42291    0.17885    0.01473   -0.00030     0.1745270E-01          0.29599
P9                                           0.44575    0.19869    0.01984   -0.22617     17.89773               0.47125
P2                                           0.46529    0.21650    0.01781   -0.08809    -4.241478              -0.56898
P16                                          0.49045    0.24054    0.02405   -0.17256    -0.8423116E-02         -0.47308
P6                                           0.50486    0.25489    0.01434   -0.00030    -0.1377746             -0.27877
P17                                          0.52997    0.28087    0.02598   -0.16368     0.2998431E-02          0.38187
P7                                           0.55098    0.30357    0.02270    0.12954     5.401693               0.19315
P1                                           0.56180    0.31562    0.01205    0.04547    -0.1903693E-03         -0.16317
R5                                           0.56753    0.32209    0.00647    0.02067     0.7964239              0.09540
P12                                          0.57402    0.32950    0.00741   -0.16125    -0.8987259E-03         -0.06269
P11                                          0.57617    0.33197    0.00247   -0.13276     0.2820503E-02          0.18277
P13                                          0.57991    0.33629    0.00432   -0.02774     0.8399644E-04          0.13776
P4                                           0.58294    0.33982    0.00353   -0.18557     0.4062646E-04          0.10856
P15                                          0.58571    0.34306    0.00324   -0.08147     0.1976184E-02          0.05651
P19                                          0.58815    0.34591    0.00285    0.02073    -0.5931942E-02         -0.28175
R3                                           0.59117    0.34948    0.00357    0.08018     0.4624687              0.07504
P23                                          0.59352    0.35226    0.00278   -0.05349     0.1942519E-02          1.94678
P22                                          0.59582    0.35501    0.00275   -0.05139    -0.3653897E-02         -3.65152
P21                                          0.59888    0.35865    0.00364   -0.05037     0.9651638E-03          1.74617
P10                                          0.59958    0.35950    0.00084   -0.19910     0.2216319E-02          0.28569
R4                                           0.59990    0.35988    0.00038   -0.04905    -0.1432404             -0.02088
R7                                           0.60015    0.36018    0.00030   -0.06439     0.7193129              0.04482
P8                                           0.60031    0.36037    0.00019    0.05513     4.078119               0.09253
(CONSTANT)                                                                               27.02826
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                               08/25/80        PAGE 1423
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                REGRESSION LIST  6

DEPENDENT VARIABLE..     C166

VARIABLE(S) ENTERED ON STEP NUMBER 10..     P6

MULTIPLE R            0.51185          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES      MEAN SQUARE           F          P
R SQUARE              0.26199          REGRESSION                10.          157.35576          15.73558         2.91095    0.0036
ADJUSTED R SQUARE     0.17199          RESIDUAL                  82.          443.26252           5.40564
STANDARD ERROR        2.32500

------------------ VARIABLES IN THE EQUATION ------------------       ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE             B            BETA      STD ERROR B       F         VARIABLE      BETA IN      PARTIAL    TOLERANCE        F

P20        -0.9549888E-02      -0.61604       0.00319       8.949        P1          -0.12882     -0.08259     0.30333       0.556
JUR        -0.9895105          -0.18406       0.79142       1.563        P4           0.14053      0.07882     0.23218       0.506
P3           4.655052           0.30535       1.95864       5.649        P5           0.02878      0.03152     0.88564       0.081
P14         0.1491904E-01       0.24813       0.00777       3.691        P7           0.06455      0.05825     0.60091       0.276
P8         -11.22875           -0.24984       7.01005       2.566        P9           0.35701      0.07803     0.03526       0.496
P13         0.6379023E-04       0.10260       0.00007       0.910        P10         -0.37912     -0.07390     0.02804       0.445
P2          -2.636708          -0.34687       1.33821       3.882        P11          0.05158      0.03876     0.41679       0.122
P16        -0.8067440E-02      -0.44435       0.00411       3.849        P12         -0.08596     -0.08265     0.68229       0.557
P17         0.3426931E-02       0.42800       0.00203       2.847        P15         -0.05111     -0.03572     0.36048       0.103
P6         -0.1065179          -0.21136       0.07276       2.143        P18          0.04976      0.03884     0.44952       0.122
(CONSTANT)  34.72254                                                     P19         -0.08897     -0.01763     0.02897       0.025
                                                                         P21          0.05239      0.05317     0.76010       0.230
                                                                         P22          0.05180      0.05256     0.75961       0.224
                                                                         P23          0.05385      0.05420     0.74752       0.239
                                                                         P24          0.05271      0.05336     0.75641       0.231
                                                                         R1          -0.05435     -0.05555     0.77088       0.251
                                                                         R2           0.03703      0.03819     0.78494       0.118
                                                                         R3           0.02942      0.03283     0.91901       0.087
                                                                         R4          -0.01216     -0.01352     0.91235       0.015
                                                                         R5          -0.02254     -0.02472     0.88781       0.050
                                                                         R6          -0.00706     -0.00778     0.89625       0.005
                                                                         R7           0.05811      0.06062     0.80302       0.299
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80        PAGE 1437
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  6
DEPENDENT VARIABLE..     C166

                                                    SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R             B                   BETA

P20                                             0.28128    0.07912    0.07912    -0.28128     -0.1967238E-01         -1.26901
JUR                                             0.33345    0.11119    0.03207    -0.01730     -0.8880578             -0.16519
P3                                              0.37220    0.13853    0.02735     0.22633      5.123438               0.33607
P14                                             0.40661    0.16533    0.02680     0.02053      0.1704740E-01          0.28353
P8                                              0.43074    0.18553    0.02020     0.03198     -4.806964              -0.10695
P13                                             0.44953    0.20208    0.01654     0.00744      0.7569799E-04          0.12175
P2                                              0.46189    0.21334    0.01127    -0.06154     -3.497981              -0.46017
P16                                             0.48101    0.23137    0.01803    -0.15568     -0.6225684E-02         -0.34290
P17                                             0.49264    0.24270    0.01133    -0.16153      0.4922972E-02          0.61485
P6                                              0.51185    0.26199    0.01929     0.01344     -0.1099245             -0.21812
P12                                             0.51675    0.26703    0.00504    -0.20768     -0.1363535E-02         -0.09328
P1                                              0.52206    0.27255    0.00552     0.04633     -0.1882825E-03         -0.15826
P9                                              0.52891    0.27975    0.00720    -0.23447     13.90368                0.35900
P15                                             0.53160    0.28260    0.00286    -0.11639     -0.3136529E-02         -0.08796
P4                                              0.53398    0.28514    0.00254    -0.21368      0.5985647E-04          0.15685
R7                                              0.53577    0.28705    0.00191    -0.08222      0.9573498              0.05850
P11                                             0.53743    0.28883    0.00178    -0.15230      0.1235552E-02          0.07852
P5                                              0.53921    0.29075    0.00192    -0.02647      0.2376767E-01          0.05224
P18                                             0.54051    0.29215    0.00140    -0.12586      0.6286121E-03          0.05917
P19                                             0.54090    0.29257    0.00042     0.01055     -0.3086567E-02         -0.14377
P21                                             0.54105    0.29273    0.00016    -0.06852      0.4873609E-03          0.86468
P22                                             0.54141    0.29312    0.00039    -0.07066     -0.1435861E-02         -1.40718
P23                                             0.54185    0.29360    0.00048    -0.07743      0.5610138E-03          0.55137
(CONSTANT)                                                                                    31.62447
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80       PAGE 1448
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  7

DEPENDENT VARIABLE..    C167

VARIABLE(S) ENTERED ON STEP NUMBER 11..    P8

MULTIPLE R            0.55588           ANALYSIS OF VARIANCE    DF      SUM OF SQUARES       MEAN SQUARE          F         P
R SQUARE              0.30901           REGRESSION              11.       5334.60117          484.96374       3.29296   0.0009
ADJUSTED R SQUARE     0.21517           RESIDUAL                81.      11929.08950          147.27271
STANDARD ERROR       12.13560

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION --------------

VARIABLE            B          BETA     STD ERROR B         F          VARIABLE      BETA IN     PARTIAL    TOLERANCE          F

P20      -0.5712251E-01     -0.68730       0.01666      11.755          P1          -0.14403    -0.09315     0.28905       0.700
JUR        -4.725228        -0.16395       4.03794       1.369          P4           0.09545     0.05370     0.21871       0.231
P14       0.6208990E-01      0.19261       0.03970       2.447          P5          -0.03979    -0.04400     0.84484       0.155
R6         -3.850865        -0.10888       3.49905       1.211          P7           0.04282     0.03990     0.59995       0.128
R1         -4.126059        -0.11666       3.70540       1.240          P9           0.09437     0.02126     0.03506       0.036
P3         21.23969          0.25987      10.20810       4.329          P10         -0.29231    -0.05855     0.02772       0.275
P2        -16.44377         -0.40349       7.13119       5.317          P11          0.03221     0.02601     0.45052       0.054
P16      -0.5602612E-01     -0.57558       0.02148       6.804          P12         -0.00768    -0.00760     0.67686       0.005
P17       0.2630940E-01      0.61289       0.01046       6.326          P13         -0.00071    -0.00073     0.74910       0.000
P6        -0.6700858        -0.24801       0.38004       3.109          P15         -0.05046    -0.03588     0.34933       0.103
P8        -43.62823         -0.18106      35.94741       1.473          P18          0.05437     0.04390     0.45055       0.155
(CONSTANT)  203.6744                                                    P19         -0.00820    -0.00166     0.02837       0.000
                                                                        P21         -0.00553    -0.00580     0.75927       0.003
                                                                        P22         -0.00428    -0.00449     0.75933       0.002
                                                                        P23         -0.00223    -0.00232     0.75037       0.000
                                                                        P24         -0.00435    -0.00455     0.75664       0.002
                                                                        R2           0.00546     0.00565     0.73972       0.003
                                                                        R3           0.02893     0.03041     0.76365       0.074
                                                                        R4          -0.02894    -0.03131     0.80920       0.079
                                                                        R5          -0.00597    -0.00662     0.84900       0.004
                                                                        R7          -0.00393    -0.00425     0.81025       0.001
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                           08/25/80        PAGE 1461
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  7
DEPENDENT VARIABLE..    C167

                                                    SUMMARY TABLE

VARIABLE                                   MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R           B                      BETA

P20                                         0.30853    0.09519   0.09519    -0.30853    -0.6059604E-01              -0.72910
JUR                                         0.38077    0.14499   0.04980    -0.04225     -5.426018                  -0.18826
P14                                         0.40372    0.16299   0.01800    -0.01405     0.5791872E-01              0.17967
R6                                          0.42427    0.18001   0.01702    -0.15520     -3.183672                  -0.09001
R1                                          0.44073    0.19424   0.01424    -0.01439     -1.944744                  -0.05498
P3                                          0.45311    0.20531   0.01107     0.17016      23.68408                   0.28978
P2                                          0.46839    0.21938   0.01407    -0.10109     -22.42440                  -0.55024
P16                                         0.49660    0.24662   0.02723    -0.16068    -0.5201949E-01              -0.53442
P17                                         0.50922    0.25930   0.01269    -0.14538     0.2854129E-01              0.66489
P6                                          0.54446    0.29644   0.03714     0.00555    -0.7207114                  -0.26674
P8                                          0.55588    0.30901   0.01257     0.07096     -93.89686                  -0.38968
P1                                          0.56125    0.31500   0.00600     0.06375    -0.1253738E-02              -0.19656
P10                                         0.56331    0.31731   0.00231    -0.18255    -0.7907437E-02              -0.18645
P18                                         0.56504    0.31927   0.00196    -0.13427     0.2343206E-02              0.04114
P11                                         0.56585    0.32018   0.00091    -0.12786     0.5893452E-02              0.06986
P4                                          0.56724    0.32176   0.00158    -0.23191     0.1682314E-03              0.08223
R3                                          0.56794    0.32256   0.00080     0.06645      1.116634                   0.03314
P19                                         0.56840    0.32307   0.00052     0.05175     0.2916716E-01              0.25341
P15                                         0.56918    0.32397   0.00090    -0.11309    -0.1479987E-01              -0.07741
P13                                         0.56949    0.32432   0.00035    -0.04787     0.9711182E-04              0.02913
R5                                          0.56985    0.32473   0.00041    -0.03549      1.170586                   0.02565
P5                                          0.57015    0.32507   0.00034    -0.12589    -0.5869659E-01              -0.02406
P12                                         0.57029    0.32523   0.00016    -0.13565    -0.1336373E-02              -0.01705
(CONSTANT)                                                                               213.4270
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                      08/25/80        PAGE 1469
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  8

DEPENDENT VARIABLE..     C168

VARIABLE(S) ENTERED ON STEP NUMBER  8..     P11

MULTIPLE R           0.57556          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES       MEAN SQUARE              F          P
R SQUARE             0.33127          REGRESSION                8.        2658.82144         332.35268          5.20145     0.0000
ADJUSTED R SQUARE    0.26758          RESIDUAL                 84.        5367.27317          63.89611
STANDARD ERROR       7.99350

------------------ VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE                B              BETA     STD ERROR B      F         VARIABLE     BETA IN      PARTIAL    TOLERANCE          F

P8               -64.03651         -0.38976      18.21336     12.362       P2          -0.09399     -0.05010     0.19001        0.209
P16           -0.4130203E-01       -0.62231       0.01308      9.968       P3           0.06530      0.06921     0.75126        0.399
JUR               -6.013553        -0.30600       2.42653      6.142       P4           0.06909      0.04988     0.34861        0.207
R2                 6.754622         0.25841       2.49076      7.354       P5          -0.03117     -0.03646     0.91494        0.110
P1            -0.6380246E-03       -0.14670       0.00053      1.449       P6           0.06194      0.06465     0.72855        0.348
P13           -0.3853129E-03       -0.16953       0.00024      2.637       P7           0.02508      0.02309     0.56651        0.044
P10            0.1142237E-01        0.39499       0.00616      3.436       P9          -0.07966     -0.05327     0.29906        0.236
P11           -0.9871889E-02       -0.17161       0.00715      1.907       P12         -0.02620     -0.02927     0.83468        0.071
(CONSTANT)       53.69745                                                  P14         -0.13060     -0.11965     0.56128        1.206
                                                                           P15          0.07802      0.05606     0.34525        0.262
                                                                           P17          0.04341      0.00993     0.03502        0.008
                                                                           P18         -0.05883     -0.04938     0.47121        0.203
                                                                           P19          0.17306      0.03792     0.03210        0.119
                                                                           P20         -0.20057     -0.09975     0.16539        0.834
                                                                           P21         -0.02214     -0.02539     0.87981        0.054
                                                                           P22         -0.01845     -0.02120     0.88213        0.037
                                                                           P23         -0.01743     -0.01994     0.87510        0.033
                                                                           P24         -0.01997     -0.02290     0.87912        0.044
                                                                           R1           0.03441      0.03581     0.72402        0.107
                                                                           R3          -0.04191     -0.04900     0.91409        0.200
                                                                           R4           0.04949      0.05885     0.94561        0.288
                                                                           R5          -0.03607     -0.04151     0.88570        0.143
                                                                           R6           0.02332      0.02685     0.88643        0.060
                                                                           R7          -0.06770     -0.07957     0.92370        0.529
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80       PAGE 1488
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *     VARIABLE LIST  1
                                                                                                                       REGRESSION LIST  8

DEPENDENT VARIABLE..     C168

                                              SUMMARY TABLE

VARIABLE                                MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                   BETA

P8                                        0.29722    0.08834    0.08834    -0.29722     -11.75233               -0.07153
P16                                       0.40173    0.16139    0.07305    -0.16827     -0.2761336E-01          -0.41606
JUR                                       0.47779    0.22828    0.06689    -0.21941     -0.8257254              -0.04202
R2                                        0.51716    0.26745    0.03917     0.17528      4.463256                0.17075
P1                                        0.54352    0.29541    0.02796    -0.10295     -0.1300860E-02          -0.29911
P13                                       0.55091    0.30351    0.00810    -0.15917     -0.3639516E-03          -0.16013
P10                                       0.56222    0.31609    0.01259    -0.11633      0.4726592E-01           1.63449
P11                                       0.57556    0.33127    0.01518    -0.01960     -0.7408589E-02          -0.12879
P14                                       0.58382    0.34085    0.00957    -0.24420     -0.3559078E-01          -0.16193
R7                                        0.59047    0.34866    0.00781     0.01587     -26.09353               -0.43621
P23                                       0.59856    0.35828    0.00962     0.11614      0.4422277E-02           1.18895
P21                                       0.60297    0.36358    0.00530     0.10235     -0.1735925E-02          -0.84253
P20                                       0.60789    0.36953    0.00595     0.02367     -0.1125759              -1.98655
P9                                        0.62204    0.38694    0.01741     0.12370      163.7749                1.15682
P4                                        0.62837    0.39485    0.00791     0.09538      0.3478833E-03           0.24938
P3                                        0.63577    0.40420    0.00935     0.17289      9.070611                0.16276
P19                                       0.64022    0.40988    0.00567    -0.29086     -0.4172852E-01          -0.53170
R5                                        0.64494    0.41595    0.00608    -0.06074     -3.945769               -0.12679
R3                                        0.64821    0.42018    0.00423    -0.04240     -2.058766               -0.08961
P5                                        0.64985    0.42231    0.00213     0.04592     -0.1208745              -0.07268
P6                                        0.65117    0.42402    0.00171    -0.05354     -0.1261876              -0.06850
R4                                        0.65152    0.42448    0.00046     0.03855     -0.8819626              -0.03450
P17                                       0.65192    0.42500    0.00051    -0.12356     -0.5435107E-02          -0.18569
P18                                       0.65222    0.42539    0.00040    -0.07784     -0.3160720E-02          -0.08138
P7                                        0.65287    0.42624    0.00085     0.07471      6.215734                0.05962
P2                                        0.65314    0.42659    0.00035     0.07732     -1.322443               -0.04759
(CONSTANT)                                                                                1.274529
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                       08/25/80      PAGE 1495
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  9
DEPENDENT VARIABLE..     C169

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P17

MULTIPLE R           0.57356          ANALYSIS OF VARIANCE      DF       SUM OF SQUARES       MEAN SQUARE           F          P
R SQUARE             0.32897          REGRESSION                 7.          2712.46841         387.49549        5.95306     0.0000
ADJUSTED R SQUARE    0.27371          RESIDUAL                  85.          5532.80588          65.09183
STANDARD ERROR       8.06795

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B       F         VARIABLE      BETA IN      PARTIAL     TOLERANCE          F

P8              -61.75479       -0.37085      22.82881       7.318       P1           -0.08483     -0.07452      0.51774         0.469
P16          -0.4450385E-01     -0.66158       0.01100      16.362       P2            0.04585      0.03165      0.31970         0.084
JUR              -7.619352      -0.38253       2.31028      10.877       P3            0.04954      0.05351      0.78271         0.241
R2                5.474638       0.20664       2.43770       5.044       P5            0.00706      0.00762      0.78218         0.005
P4            0.5620109E-03      0.39748       0.00025       4.919       P6            0.08607      0.08689      0.68391         0.639
P9              -50.82473       -0.35419      26.55043       3.664       P7            0.11100      0.10583      0.60997         0.952
P17           0.6274565E-02      0.21151       0.00524       1.433       P10          -0.40446     -0.09135      0.03423         0.707
(CONSTANT)       53.93473                                                P11           0.01792      0.01488      0.46266         0.019
                                                                         P12          -0.03937     -0.04307      0.80310         0.156
                                                                         P13          -0.07164     -0.07604      0.75595         0.489
                                                                         P14           0.01411      0.01370      0.63239         0.016
                                                                         P15          -0.03314     -0.02466      0.37154         0.051
                                                                         P18          -0.07524     -0.06297      0.46992         0.334
                                                                         P19          -0.11047     -0.02399      0.03166         0.048
                                                                         P20          -0.43021     -0.08627      0.02699         0.630
                                                                         P21           0.01049      0.01142      0.79431         0.011
                                                                         P22           0.01559      0.01695      0.79349         0.024
                                                                         P23           0.01428      0.01542      0.78237         0.020
                                                                         P24           0.01285      0.01394      0.79050         0.016
                                                                         R1            0.09587      0.09765      0.69615         0.809
                                                                         R3            0.00055      0.00064      0.89544         0.000
                                                                         R4           -0.06666     -0.07888      0.93967         0.526
                                                                         R5           -0.09321     -0.10618      0.87081         0.958
                                                                         R6            0.06775      0.07954      0.92485         0.535
                                                                         R7           -0.02313     -0.02603      0.85009         0.057
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                    08/25/80        PAGE 1514
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                               REGRESSION LIST  9

DEPENDENT VARIABLE..    C169

                                                          SUMMARY TABLE

VARIABLE                                           MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                BETA

P8                                                  0.30741    0.09450    0.09450    -0.30741       -73.21432            -0.43966
P16                                                 0.38040    0.14470    0.05020    -0.12114       -0.3099270E-01       -0.46072
JUR                                                 0.48187    0.23220    0.08749    -0.26925       -5.850337            -0.29371
R2                                                  0.51666    0.26694    0.03474     0.16546        3.855082             0.14551
P4                                                  0.54433    0.29629    0.02935     0.16887        0.6759874E-03        0.47809
P9                                                  0.56361    0.31766    0.02137     0.15584        41.95237             0.29236
P17                                                 0.57356    0.32897    0.01132    -0.06753        0.1120814E-01        0.37781
R5                                                  0.58012    0.33654    0.00757    -0.06307       -4.512465            -0.14306
P7                                                  0.58661    0.34412    0.00758     0.14046        25.34630             0.23988
P18                                                 0.60286    0.36344    0.01933    -0.03017       -0.1053861E-01       -0.26772
R4                                                  0.60926    0.37120    0.00776    -0.04675       -3.908858            -0.15085
R3                                                  0.61252    0.37518    0.00397    -0.01051       -2.479712            -0.10649
P20                                                 0.61520    0.37847    0.00329     0.05733       -0.5105282E-01       -0.88884
P1                                                  0.61920    0.38341    0.00495    -0.04325       -0.6920644E-03       -0.15700
R7                                                  0.62148    0.38623    0.00282     0.05794       -17.01189            -0.28058
P23                                                 0.62602    0.39190    0.00567     0.15790        0.3188116E-02        0.84567
P21                                                 0.62860    0.39513    0.00324     0.14898       -0.1265432E-02       -0.60596
P6                                                  0.63146    0.39874    0.00360    -0.06211        0.1222569            0.06547
P10                                                 0.63233    0.39985    0.00111    -0.09734        0.9563227E-02        0.32628
P13                                                 0.63305    0.40075    0.00090    -0.11472       -0.4708885E-04       -0.02044
P15                                                 0.63345    0.40126    0.00051    -0.02295       -0.7991040E-02       -0.06048
P5                                                  0.63370    0.40157    0.00031     0.01097       -0.3640027E-01       -0.02159
R6                                                  0.63392    0.40186    0.00028     0.08329       -0.5978459           -0.02446
P2                                                  0.63412    0.40210    0.00025     0.03732       -1.147565            -0.04074
P12                                                 0.63422    0.40223    0.00013    -0.09422       -0.8099807E-03       -0.01495
(CONSTANT)                                                                                         28.48361
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80        PAGE 1524
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                REGRESSION LIST 10

DEPENDENT VARIABLE..    C170

VARIABLE(S) ENTERED ON STEP NUMBER 10..     P2


MULTIPLE R           0.64080          ANALYSIS OF VARIANCE     DF       SUM OF SQUARES         MEAN SQUARE              F          P
R SQUARE             0.41062          REGRESSION              10.           4294.31979           429.43198         5.71304     0.0000
ADJUSTED R SQUARE    0.33875          RESIDUAL                82.           6163.68920            75.16694
STANDARD ERROR       8.66989


----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE             B             BETA      STD ERROR B        F        VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

P8            -66.63567        -0.35531        24.97784      7.117        P1          -0.04962     -0.03487      0.29101        0.099
P16           -0.2438480E-01   -0.32187         0.01841      1.754        P3           0.05551      0.06335      0.76768        0.326
JUR            -7.211137       -0.32146         2.90398      6.166        P5           0.01368      0.01558      0.76463        0.020
R2              7.402496        0.24810         2.67767      7.643        P6          -0.01578     -0.01688      0.67451        0.023
P4             0.5857354E-03    0.36783         0.00028      4.307        P7           0.05335      0.05374      0.59812        0.235
R6              2.437710        0.08855         2.50697      0.946        P10          0.39813      0.07637      0.02169        0.475
P20           -0.8107920E-01   -1.25341         0.03752      4.671        P11         -0.02111     -0.01869      0.46229        0.028
P17            0.1489843E-01    0.44592         0.00756      3.884        P12          0.01787      0.02067      0.78839        0.035
P9            117.8183          0.72905        73.95885      2.538        P13         -0.01271     -0.01433      0.74946        0.017
P2              6.792196        0.21413         5.50096      1.525        P14          0.06319      0.06350      0.59515        0.328
(CONSTANT)     29.69643                                                  P15          0.08763      0.06949      0.37058        0.393
                                                                         P18         -0.06750     -0.05969      0.46094        0.290
                                                                         P19         -0.07931     -0.01719      0.02769        0.024
                                                                         P21         -0.04489     -0.05169      0.78142        0.217
                                                                         P22         -0.03748     -0.04314      0.78061        0.151
                                                                         P23         -0.03474     -0.03972      0.77035        0.128
                                                                         P24         -0.04038     -0.04639      0.77788        0.175
                                                                         R1           0.06795      0.07115      0.64614        0.412
                                                                         R3          -0.02941     -0.03438      0.80559        0.096
                                                                         R4           0.06509      0.07896      0.86716        0.508
                                                                         R5          -0.07306     -0.08632      0.82259        0.608
                                                                         R7          -0.07621     -0.09080      0.83680        0.673
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80       PAGE 1544
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                              REGRESSION LIST 10
DEPENDENT VARIABLE..     C170

                                        SUMMARY TABLE

VARIABLE              MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                   BETA

P8                      0.34529    0.11922   0.11922    -0.34529      -54.48996               -0.29055
P16                     0.42639    0.18181   0.06259    -0.13463     -0.1874733E-01           -0.24746
JUR                     0.53186    0.28287   0.10106    -0.29167       -4.131317              -0.18417
R2                      0.56451    0.31867   0.03580     0.16516        7.033355               0.23572
P4                      0.59685    0.35623   0.03756     0.19343       0.6781344E-03           0.42586
R6                      0.60548    0.36661   0.01038     0.13312        2.047995               0.07440
P20                     0.61314    0.37594   0.00933     0.08967      -0.1297116              -2.00522
P17                     0.62420    0.38963   0.01369    -0.08407       0.9254628E-03           0.02770
P9                      0.63219    0.39967   0.01004     0.22646        190.1164               1.17642
P2                      0.64080    0.41062   0.01096     0.05473        5.016958               0.15817
R7                      0.64458    0.41548   0.00486     0.03402       -23.06922              -0.33785
R5                      0.64898    0.42117   0.00569    -0.08073       -4.368470              -0.12298
P15                     0.65286    0.42623   0.00506     0.00992       0.2563816E-01           0.17230
P7                      0.65647    0.43095   0.00472     0.13075        29.51181               0.24800
P18                     0.66301    0.43958   0.00863    -0.01556     -0.9587809E-02           -0.21627
P10                     0.66714    0.44508   0.00550    -0.10594       0.2832915E-01           0.85821
P12                     0.67108    0.45035   0.00528    -0.04996       0.4771226E-02           0.07822
P23                     0.67505    0.45570   0.00534     0.14492       0.4894854E-02           1.15289
P21                     0.68267    0.46604   0.01034     0.13100     -0.2075566E-02           -0.88251
P3                      0.68525    0.46956   0.00353     0.09324        9.498277               0.14931
P6                      0.68940    0.47527   0.00571    -0.15393      -0.2425014              -0.11532
P14                     0.69012    0.47627   0.00099    -0.20665       0.1387093E-01           0.05529
P11                     0.69109    0.47761   0.00134     0.05350       0.4102259E-02           0.06247
R4                      0.69142    0.47806   0.00045     0.03882       0.2606110               0.00893
P19                     0.69165    0.47838   0.00032    -0.32424     -0.1435037E-01           -0.16019
P5                      0.69179    0.47858   0.00020     0.07401     -0.4095600E-01           -0.02157
R3                      0.69192    0.47875   0.00017    -0.04396      -0.6868476              -0.02619
P1                      0.69209    0.47898   0.00023    -0.01432     -0.1750937E-03           -0.03527
P13                     0.69216    0.47909   0.00011    -0.06261       0.3790415E-04           0.01461
(CONSTANT)                                                            -23.10945
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                           08/25/80       PAGE 1556
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *    VARIABLE LIST  1
                                                                                                                    REGRESSION LIST  1
DEPENDENT VARIABLE..    C171

VARIABLE(S) ENTERED ON STEP NUMBER  6..    P9

MULTIPLE R             0.61708          ANALYSIS OF VARIANCE     DF        SUM OF SQUARES       MEAN SQUARE            F          P
R SQUARE               0.38078          REGRESSION               6.           25572.81359        4262.13560        8.81420    0.0000
ADJUSTED R SQUARE      0.33758          RESIDUAL                86.           41585.57097         483.55315
STANDARD ERROR        21.98984

----------------- VARIABLES IN THE EQUATION ------------------            ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE          B              BETA     STD ERROR B        F            VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

P8           -146.6160        -0.30850     50.93543       8.286           P1           -0.12034     -0.11122     0.52889         1.065
P16          -0.1124106       -0.58552      0.02189      26.363           P2            0.10700      0.07829     0.33154         0.524
JUR           -22.65894       -0.39860      6.29654      12.950           P3            0.06874      0.07737     0.78434         0.512
R2             18.36412        0.24288      6.60610       7.728           P5            0.01807      0.02031     0.78243         0.035
P4           0.1595040E-02     0.39527      0.00068       5.580           P6            0.08838      0.09913     0.77896         0.844
P9            -89.00970       -0.21735     69.47849       1.641           P7           -0.00132     -0.00147     0.76398         0.000
(CONSTANT)    180.3233                                                    P10           0.18010      0.10944     0.22865         1.030
                                                                          P11           0.04850      0.05223     0.71817         0.233
                                                                          P12           0.01254      0.01472     0.85392         0.018
                                                                          P13          -0.06407     -0.07115     0.76362         0.433
                                                                          P14           0.05528      0.05826     0.68756         0.289
                                                                          P15           0.11389      0.10874     0.56452         1.017
                                                                          P17           0.19590      0.12521     0.25296         1.354
                                                                          P18          -0.06669     -0.05830     0.47322         0.290
                                                                          P19           0.34082      0.11293     0.06799         1.098
                                                                          P20          -0.00285     -0.00079     0.04721         0.000
                                                                          P21          -0.02892     -0.03276     0.79437         0.091
                                                                          P22          -0.02463     -0.02788     0.79379         0.066
                                                                          P23          -0.02176     -0.02447     0.78265         0.051
                                                                          P24          -0.02598     -0.02936     0.79065         0.073
                                                                          R1            0.08131      0.08819     0.72850         0.666
                                                                          R3           -0.05201     -0.06410     0.94058         0.351
                                                                          R4           -0.00329     -0.00406     0.94039         0.001
                                                                          R5           -0.09107     -0.10810     0.87248         1.005
                                                                          R6            0.08379      0.10246     0.92594         0.902
                                                                          R7           -0.06118     -0.07168     0.85019         0.439
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC--1=SEP                          08/25/80        PAGE 1580
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST   1
                                                                                                                   REGRESSION LIST  1
DEPENDENT VARIABLE..      C171

                                                         SUMMARY TABLE

VARIABLE                                     MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R           B                    BETA

P8                                             0.34672   0.12021   0.12021    -0.34672     -143.1706                -0.30125
P16                                            0.43986   0.19347   0.07326    -0.15374     -0.7773922E-01           -0.40492
JUR                                            0.54306   0.29492   0.10145    -0.28391     -10.65973                -0.18752
R2                                             0.58167   0.33835   0.04343     0.18374      13.88375                 0.18362
P4                                             0.60743   0.36897   0.03062     0.16848      0.1703832E-02            0.42223
P9                                             0.61708   0.38078   0.01182     0.18673      393.8752                 0.96178
P17                                            0.62489   0.39049   0.00971    -0.09955      0.7318711E-02            0.08644
R5                                             0.63127   0.39850   0.00800    -0.07495     -14.39052                -0.15986
P20                                            0.63696   0.40572   0.00722     0.06366     -0.2919408               -1.78095
P1                                             0.64651   0.41797   0.01225    -0.05639     -0.2165309E-02           -0.17212
P3                                             0.65168   0.42469   0.00672     0.12766      19.26605                 0.11951
P10                                            0.65508   0.42913   0.00444    -0.11613      0.8459960E-01            1.01136
P19                                            0.65980   0.43534   0.00621    -0.33257     -0.5325250E-01           -0.23457
R3                                             0.66339   0.44009   0.00475    -0.03568     -6.729108                -0.10126
R7                                             0.66759   0.44567   0.00558     0.03921     -67.80854                -0.39187
P23                                            0.67532   0.45606   0.01038     0.15266      0.1248237E-01            1.16016
P21                                            0.68152   0.46448   0.00842     0.13928     -0.5064557E-02           -0.84976
R4                                             0.68365   0.46738   0.00290     0.01226     -6.030270                -0.08154
P13                                            0.68527   0.46959   0.00222    -0.12259     -0.4098171E-03           -0.06233
P7                                             0.68696   0.47192   0.00232     0.12664      61.07599                 0.20254
P18                                            0.69267   0.47979   0.00787    -0.04362     -0.2329483E-01           -0.20736
P5                                             0.69332   0.48069   0.00090     0.04893     -0.1933918               -0.04020
P6                                             0.69376   0.48130   0.00061    -0.10102     -0.2617419               -0.04912
P14                                            0.69413   0.48181   0.00051    -0.24031     -0.2385371E-01           -0.03752
P12                                            0.69443   0.48224   0.00043    -0.08954      0.4350334E-02            0.02814
P15                                            0.69468   0.48258   0.00035    -0.01148      0.1727543E-01            0.04581
R1                                             0.69488   0.48285   0.00027    -0.20401     -1.628520                -0.02334
P11                                            0.69497   0.48298   0.00013     0.03305     -0.3841531E-02           -0.02309
P2                                             0.69507   0.48312   0.00014     0.06140      2.442059                 0.03038
(CONSTANT)                                                                                 7.810647
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS.JUR=O=PUBLIC-=1=SEP                          08/25/80       PAGE 1587
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  2
DEPENDENT VARIABLE..     C172

VARIABLE(S) ENTERED ON STEP NUMBER  7..     P22

MULTIPLE R            0.76924          ANALYSIS OF VARIANCE      DF        SUM OF SQUARES        MEAN SQUARE           F            P
R SQUARE              0.59172          REGRESSION                 7.         114582.60550        16368.94364       17.59895     0.0000
ADJUSTED R SQUARE     0.55810          RESIDUAL                  85.          79059.29154          930.10931
STANDARD ERROR       30.49769

----------------- VARIABLES IN THE EQUATION ------------------          ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B             BETA     STD ERROR B        F          VARIABLE      BETA IN      PARTIAL   TOLERANCE         F

JUR            -50.23821        -0.52045        7.13448      49.584        P1            0.09120      0.10538     0.54503        0.943
P23            0.3718310E-01     2.03525        0.01706       4.753        P2            0.05142      0.05440     0.45699        0.249
P13           -0.2526673E-02    -0.22632        0.00082       9.435        P4            0.06109      0.07675     0.64449        0.498
P3              63.11246         0.23056       19.86525      10.094        P6            0.04456      0.05801     0.69213        0.284
P7             101.6767          0.19857       36.35058       7.824        P8           -0.11804     -0.14841     0.64533        1.892
P5               1.126467        0.13789        0.57555       3.831        P9            0.05969      0.07335     0.61649        0.454
P22           -0.3195030E-01    -1.74386        0.01712       3.481        P10           0.10688      0.12357     0.54570        1.302
(CONSTANT)     -50.61346                                                   P11           0.04651      0.06351     0.76127        0.340
                                                                           P12          -0.01287     -0.01737     0.74424        0.025
                                                                           P14          -0.06135     -0.08208     0.73074        0.570
                                                                           P15           0.13531      0.15137     0.51089        1.970
                                                                           P16          -0.01765     -0.02060     0.55624        0.036
                                                                           P17           0.11843      0.13724     0.54826        1.612
                                                                           P18           0.11417      0.13433     0.56511        1.543
                                                                           P19          -0.04709     -0.05815     0.62257        0.285
                                                                           P20           0.05065      0.06411     0.65405        0.347
                                                                           P21           0.62440      0.04527     0.00215        0.173
                                                                           P24           1.31415      0.04530     0.00049        0.173
                                                                           R1           -0.09911     -0.14463     0.86946        1.795
                                                                           R2           -0.03649     -0.05278     0.85439        0.235
                                                                           R3            0.05790      0.08833     0.94998        0.660
                                                                           R4            0.02614      0.03951     0.93301        0.131
                                                                           R5           -0.04374     -0.06677     0.95148        0.376
                                                                           R6            0.07362      0.11171     0.94020        1.062
                                                                           R7           -0.05404     -0.03490     0.17026        0.102
```

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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                    08/25/80       PAGE 1609
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  2

DEPENDENT VARIABLE..     C172

                                                    SUMMARY TABLE

VARIABLE                                  MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                 BETA

JUR                                        0.55981    0.31338    0.31338   -0.55981     -22.18527          -0.22983
P23                                        0.63579    0.40422    0.09084    0.38259     0.4224773E-01       2.31247
P13                                        0.68877    0.47441    0.07018   -0.37204    -0.3781360E-02      -0.33871
P3                                         0.71571    0.51225    0.03784    0.07646      66.63765           0.24344
P7                                         0.74219    0.55084    0.03860    0.25190      122.7351           0.23969
P5                                         0.75829    0.57500    0.02416    0.14749     0.6575245           0.08049
P22                                        0.76924    0.59172    0.01672    0.37301    -0.3595456E-01      -1.96241
P15                                        0.77529    0.60108    0.00935    0.15705     0.8470831E-01       0.13229
R1                                         0.78506    0.61631    0.01524   -0.24928     -22.66700          -0.19135
R5                                         0.79030    0.62458    0.00826   -0.03321     -25.23957          -0.16512
P1                                         0.79660    0.63458    0.01000    0.27730     0.5512508E-02       0.25805
P2                                         0.81293    0.66086    0.02628   -0.20559      38.16513           0.27962
P14                                        0.81505    0.66431    0.00345   -0.35114    -0.1870204          -0.17323
P17                                        0.81971    0.67192    0.00761    0.07037     0.4999898E-01       0.34778
P16                                        0.82550    0.68145    0.00953    0.11846    -0.9194503E-01      -0.28204
P11                                        0.83176    0.69182    0.01037    0.08457    -0.4345777E-01      -0.15380
P8                                         0.83555    0.69815    0.00633   -0.45309      24.12158           0.02989
R7                                         0.83670    0.70007    0.00192    0.26480     -42.30811          -0.14399
P20                                        0.83786    0.70201    0.00194    0.26443    -0.2865911          -1.02960
P10                                        0.83967    0.70505    0.00304    0.07489     0.1123565           0.79101
P9                                         0.84218    0.70927    0.00421    0.37713      418.5262           0.60186
R4                                         0.84303    0.71071    0.00144    0.02609     -5.951141          -0.04739
R2                                         0.84376    0.71192    0.00122   -0.08973     -7.796214          -0.06072
P6                                         0.84454    0.71324    0.00132   -0.06078    -0.5673619          -0.06270
P19                                        0.84483    0.71374    0.00050   -0.36772    -0.1186200          -0.30771
P18                                        0.84521    0.71437    0.00063    0.25922     0.1256573E-01       0.06587
P4                                         0.84539    0.71468    0.00031    0.27078    -0.3320132E-03      -0.04845
P12                                        0.84549    0.71485    0.00017   -0.13176    -0.4515947E-02      -0.01721
(CONSTANT)                                                                              -288.5855
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                        08/25/80       PAGE  1618
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                         REGRESSION LIST  3
DEPENDENT VARIABLE..    C173

VARIABLE(S) ENTERED ON STEP NUMBER  9..    R2

MULTIPLE R           0.73163           ANALYSIS OF VARIANCE     DF        SUM OF SQUARES        MEAN SQUARE            F           P
R SQUARE             0.53528           REGRESSION                9.         225712.45645        25079.16183       10.62262     0.0000
ADJUSTED R SQUARE    0.48489           RESIDUAL                 83.         195956.39226         2360.92039
STANDARD ERROR      48.58930

------------------ VARIABLES IN THE EQUATION ------------------               ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B        F             VARIABLE      BETA IN      PARTIAL    TOLERANCE          F

JUR            -73.60698        -0.51675       13.73410      28.724           P1            0.04010      0.04173     0.50337         0.143
P23            0.7835768E-01     2.90648        0.02787       7.906           P2            0.05942      0.05156     0.35001         0.219
P22           -0.7149420E-01    -2.64437        0.02786       6.586           P4           -0.01074     -0.01022     0.42061         0.009
P16           -0.1342298        -0.27903        0.05802       5.352           P6            0.01948      0.02142     0.56174         0.038
P8            -161.7584         -0.13583      103.17602       2.458           P7            0.04517      0.05288     0.63692         0.230
P5               1.632859        0.13545        0.92954       3.086           P9           -0.03414     -0.03169     0.40044         0.082
P18            0.5288340E-01     0.18786        0.03113       2.886           P10           0.07870      0.06634     0.33021         0.362
P3              65.22763         0.16148       35.25807       3.423           P11           0.01911      0.02554     0.82989         0.054
R2             -20.09182        -0.10605       14.84013       1.833           P12          -0.04032     -0.05117     0.74859         0.215
(CONSTANT)     -2.948053                                                      P13          -0.08503     -0.10942     0.76946         0.994
                                                                              P14          -0.06793     -0.08230     0.68203         0.559
                                                                              P15           0.03151      0.03514     0.57812         0.101
                                                                              P17           0.07601      0.06492     0.33896         0.347
                                                                              P19           0.16649      0.06307     0.06670         0.328
                                                                              P20          -0.01915     -0.01709     0.37030         0.024
                                                                              P21           1.03603      0.07005     0.00212         0.404
                                                                              P24           2.17917      0.07006     0.00048         0.404
                                                                              R1           -0.06178     -0.07933     0.76633         0.519
                                                                              R3            0.07928      0.10963     0.88860         0.998
                                                                              R4            0.06456      0.08963     0.89573         0.664
                                                                              R5           -0.05940     -0.08247     0.89586         0.562
                                                                              R6           -0.03874     -0.05348     0.88567         0.235
                                                                              R7           -0.08782     -0.05234     0.16511         0.225
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                              08/25/80          PAGE 1640
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                  REGRESSION LIST  3
DEPENDENT VARIABLE..    C173

                                                       SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE  SIMPLE R          B                  BETA

JUR                                            0.49435    0.24438    0.24438    -0.49435     -46.31416             -0.32514
P23                                            0.59698    0.35639    0.11201     0.40558      0.1059974             3.93171
P22                                            0.64808    0.42001    0.06362     0.38803     -0.1353135            -5.00486
P16                                            0.67335    0.45340    0.03339     0.03062     -0.1685867            -0.35045
P8                                             0.69560    0.48387    0.03047    -0.37469      11.77673              0.00989
P5                                             0.70658    0.49926    0.01539     0.21800      1.392700              0.11553
P18                                            0.71491    0.51109    0.01184     0.21147      0.2414994E-01         0.08579
P3                                             0.72458    0.52502    0.01393     0.00679      68.20170              0.16884
R2                                             0.73163    0.53528    0.01026    -0.13570      10.20078              0.05384
R3                                             0.73544    0.54087    0.00559     0.09055      33.12912              0.19895
R4                                             0.74017    0.54786    0.00699     0.08717      31.55101              0.17026
P13                                            0.74454    0.55434    0.00648    -0.23854     -0.2816907E-02        -0.17099
P17                                            0.74945    0.56167    0.00733     0.05217      0.5480921E-01         0.25835
P14                                            0.75577    0.57119    0.00951    -0.32823     -0.2654721            -0.16664
P11                                            0.75842    0.57520    0.00402     0.10211     -0.4286732E-01        -0.10281
P2                                             0.76077    0.57877    0.00357    -0.08589      53.97517              0.26798
P1                                             0.76628    0.58718    0.00841     0.14541      0.7056322E-02         0.22385
P7                                             0.76880    0.59106    0.00388     0.17238      125.9906              0.16674
P21                                            0.77210    0.59614    0.00508     0.38006      0.2092321E-01         1.40103
R6                                             0.77421    0.59940    0.00326     0.08241      18.93015              0.10829
P15                                            0.77574    0.60177    0.00237     0.16983      0.8864499E-01         0.09382
P6                                             0.77724    0.60410    0.00234    -0.11017     -1.355116             -0.10148
P10                                            0.77794    0.60520    0.00109     0.06826      0.1060904             0.50615
P20                                            0.77921    0.60717    0.00197     0.27671     -0.1875565            -0.45662
P9                                             0.77955    0.60770    0.00053     0.39109      281.6938              0.27451
R1                                             0.77979    0.60807    0.00037    -0.22539      4.289476              0.02454
P12                                            0.77998    0.60837    0.00030    -0.07091     -0.1074271E-01        -0.02774
P4                                             0.78016    0.60865    0.00027     0.27940     -0.5154254E-03        -0.05097
R7                                             0.78036    0.60896    0.00032     0.29018     -21.90565             -0.05052
P19                                            0.78058    0.60931    0.00035    -0.30422     -0.9728601E-01        -0.17102
(CONSTANT)                                                                                   -318.0643
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                        08/25/80      PAGE 1646
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  4
DEPENDENT VARIABLE..    C174

VARIABLE(S) ENTERED ON STEP NUMBER  6..     P21

MULTIPLE R            0.71184          ANALYSIS OF VARIANCE    DF        SUM OF SQUARES        MEAN SQUARE            F          P
R SQUARE              0.50671          REGRESSION               6.         202706.31038        33784.38506       14.72344   0.0000
ADJUSTED R SQUARE     0.47230          RESIDUAL                86.         197335.47433         2294.59854
STANDARD ERROR       47.90197

----------------- VARIABLES IN THE EQUATION ------------------          ------------ VARIABLES NOT IN THE EQUATION -------------

VARIABLE              B            BETA      STD ERROR B        F          VARIABLE       BETA IN       PARTIAL     TOLERANCE          F

JUR             -67.63461       -0.48749       13.49405     25.122        P1            0.13136       0.11956      0.40864        1.233
P23             0.1107118        4.21612        0.03377     10.751        P2            0.06541       0.05287      0.32229        0.238
P22            -0.1634753       -6.20777        0.06912      5.594        P3            0.10223       0.12953      0.79194        1.450
P16            -0.1154267       -0.24634        0.04425      6.804        P4           -0.01073      -0.01016      0.44200        0.009
P8              -256.3345       -0.22099       98.75934      6.737        P5            0.09958       0.13721      0.93657        1.631
P21          0.3366800E-01       2.31457        0.02343      2.065        P6            0.07254       0.08802      0.72632        0.664
(CONSTANT)       145.5944                                                 P7            0.09386       0.11777      0.77664        1.196
                                                                          P9            0.03664       0.03419      0.42966        0.100
                                                                          P10           0.08298       0.06599      0.31195        0.372
                                                                          P11          -0.01393      -0.01849      0.86941        0.029
                                                                          P12          -0.05934      -0.07817      0.85596        0.523
                                                                          P13          -0.02596      -0.03471      0.88186        0.103
                                                                          P14          -0.07396      -0.08736      0.68829        0.654
                                                                          P15           0.02069       0.02111      0.51348        0.038
                                                                          P17           0.03998       0.03239      0.32367        0.089
                                                                          P18           0.12775       0.12440      0.46774        1.336
                                                                          P19           0.23967       0.08989      0.06938        0.692
                                                                          P20           0.02295       0.01990      0.37069        0.034
                                                                          P24       999999.99999 99999.99999     -0.00000    99999.999
                                                                          R1           -0.00802      -0.01046      0.83890        0.009
                                                                          R2           -0.07233      -0.10017      0.94617        0.862
                                                                          R3            0.05992       0.08357      0.95943        0.598
                                                                          R4            0.04576       0.06398      0.96426        0.349
                                                                          R5           -0.04821      -0.06599      0.92420        0.372
                                                                          R6            0.00378       0.00517      0.92319        0.002
                                                                          R7           -0.01669      -0.00943      0.15742        0.008
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                    08/25/80      PAGE 1667
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                    REGRESSION LIST  4
DEPENDENT VARIABLE..    C174

                                                 SUMMARY TABLE

VARIABLE                                 MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R           B               BETA

JUR                                        0.46533    0.21653   0.21653    -0.46533    -47.19634           -0.34018
P23                                        0.60150    0.36180   0.14527     0.44713     0.1001057           3.81222
P22                                        0.65021    0.42277   0.06097     0.42958    -0.1411348          -5.35942
P16                                        0.67891    0.46092   0.03815    -0.00290    -0.1216898          -0.25971
P8                                         0.70347    0.49487   0.03395    -0.37236     277.1070            0.23890
P21                                        0.71184    0.50671   0.01185     0.42274     0.2732889E-01       1.87878
P5                                         0.71833    0.51600   0.00929     0.20536     1.027006            0.08746
P18                                        0.72436    0.52470   0.00870     0.18375     0.3095545E-01       0.11290
P3                                         0.73227    0.53622   0.01151     0.01531     69.32988            0.17621
R2                                         0.73901    0.54614   0.00992    -0.15065     1.403243            0.00760
R4                                         0.74255    0.55138   0.00524     0.09662     29.52582            0.16358
R3                                         0.74427    0.55393   0.00256     0.04718     22.55191            0.13904
P1                                         0.74599    0.55651   0.00258     0.10868     0.5760725E-02       0.18762
P2                                         0.75245    0.56618   0.00967    -0.04441     59.51796            0.30338
P14                                        0.75476    0.56966   0.00348    -0.32616    -0.1978933          -0.12753
P13                                        0.75686    0.57283   0.00317    -0.21272    -0.1705304E-02      -0.10627
P10                                        0.75941    0.57671   0.00388     0.04207     0.1857112           0.90964
P7                                         0.76307    0.58227   0.00556     0.16036     88.81167            0.12067
P20                                        0.76540    0.58584   0.00356     0.26547    -0.4025854          -1.00627
R6                                         0.76722    0.58862   0.00279     0.09472     17.69173            0.10391
P9                                         0.76869    0.59088   0.00226     0.38865     600.6496            0.60095
P19                                        0.77063    0.59387   0.00299    -0.31319    -0.2857656          -0.51576
P11                                        0.77222    0.59632   0.00245     0.08746    -0.2999143E-01      -0.07385
P6                                         0.77301    0.59755   0.00123    -0.11213    -0.8842312          -0.06798
P15                                        0.77349    0.59828   0.00073     0.15693     0.5677555E-01       0.06169
R1                                         0.77376    0.59871   0.00043    -0.21362     6.271636            0.03684
(CONSTANT)                                                                             -367.7350
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                                08/25/80        PAGE 1676
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * *  M U L T I P L E   R E G R E S S I O N  * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                     REGRESSION LIST  5
DEPENDENT VARIABLE..     C175

VARIABLE(S) ENTERED ON STEP NUMBER  9..     P13

MULTIPLE R             0.75191          ANALYSIS OF VARIANCE      DF        SUM OF SQUARES        MEAN SQUARE            F           P
R SQUARE               0.56537          REGRESSION                 9.       1603138.57153       178126.50795       11.99658    0.0000
ADJUSTED R SQUARE      0.51825          RESIDUAL                  83.       1232393.24465        14848.11138
STANDARD ERROR       121.85283

----------------- VARIABLES IN THE EQUATION ------------------                 -------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE               B             BETA      STD ERROR B          F         VARIABLE       BETA IN       PARTIAL    TOLERANCE          F

JUR            -180.1913         -0.48783       34.83527       26.757         P1            0.04734       0.05071      0.49865        0.211
P23            0.1764359          2.52372        0.07117        6.146         P2            0.06905       0.06163      0.34626        0.313
P22           -0.1566734         -2.23467        0.07120        4.842         P4            0.03268       0.03159      0.40617        0.082
P16           -0.3426709         -0.27469        0.14547        5.549         P6            0.04571       0.05238      0.57083        0.226
P8             -419.4097         -0.13581      268.05025        2.448         P7            0.03801       0.04502      0.60985        0.167
P3              175.3194          0.16737       86.09819        4.146         P9           -0.00082      -0.00077      0.39104        0.000
P18            0.1581995          0.21672        0.07965        3.945         P10           0.10737       0.09116      0.31328        0.687
P5              4.346807          0.13905        2.36937        3.366         P11          -0.00916      -0.01273      0.83999        0.013
P13      -0.5585595E-02         -0.13075        0.00341        2.688         P12          -0.02450      -0.03205      0.74346        0.084
(CONSTANT)     -34.82658                                                    P14          -0.06824      -0.08572      0.68591        0.607
                                                                            P15           0.08825       0.10050      0.56369        0.837
                                                                            P17           0.10260       0.08824      0.32147        0.643
                                                                            P19           0.23810       0.09298      0.06627        0.715
                                                                            P20           0.00508       0.00458      0.35205        0.002
                                                                            P21           1.17998       0.08353      0.00218        0.576
                                                                            P24           2.48230       0.08355      0.00049        0.576
                                                                            R1           -0.05257      -0.07068      0.78565        0.412
                                                                            R2           -0.08125      -0.11382      0.85290        1.076
                                                                            R3            0.07292       0.10775      0.94898        0.963
                                                                            R4            0.07491       0.10824      0.90734        0.972
                                                                            R5           -0.04181      -0.06046      0.90911        0.301
                                                                            R6            0.00278       0.00402      0.91152        0.001
                                                                            R7           -0.07790      -0.04805      0.16535        0.190
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                          08/25/80         PAGE 1697
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                                 REGRESSION LIST  5

DEPENDENT VARIABLE..    C175

                                                        SUMMARY TABLE

VARIABLE                                      MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R            B                  BETA

JUR                                            0.51171    0.26184    0.26184    -0.51171     -116.8697                -0.31640
P23                                            0.62051    0.38503    0.12319     0.42433     0.2534246                 3.62496
P22                                            0.66220    0.43851    0.05348     0.40847    -0.3212986                -4.58277
P16                                            0.68623    0.47090    0.03240     0.04167    -0.3771553                -0.30233
P8                                             0.71392    0.50968    0.03877    -0.40276      302.4435                 0.09794
P3                                             0.72454    0.52495    0.01528     0.02835      204.1435                 0.19489
P18                                            0.73380    0.53846    0.01350     0.21831     0.6612873E-01             0.09059
P5                                             0.74250    0.55130    0.01284     0.19975      3.005374                 0.09614
P13                                            0.75191    0.56537    0.01407    -0.26439    -0.7933227E-02            -0.18570
R2                                             0.75565    0.57101    0.00563    -0.13237     -53.27183                -0.10843
R1                                             0.75849    0.57530    0.00429    -0.23230     -67.37715                -0.14864
P15                                            0.76112    0.57931    0.00401     0.16548     0.2179612                 0.08896
R5                                             0.76460    0.58462    0.00531    -0.03031     -80.34062                -0.13735
P14                                            0.76868    0.59087    0.00625    -0.34084    -0.6431046                -0.15567
P17                                            0.77190    0.59583    0.00496     0.04717     0.1064924                 0.19357
P7                                             0.77627    0.60259    0.00676     0.19253      338.0632                 0.17253
P1                                             0.77908    0.60696    0.00437     0.16936     0.1833150E-01             0.22425
P2                                             0.78563    0.61722    0.01026    -0.10353      151.5523                 0.29016
P11                                            0.78958    0.62343    0.00622     0.09433    -0.1136399                -0.10510
P21                                            0.79180    0.62695    0.00352     0.40072     0.5043642E-01             1.30236
P10                                            0.79310    0.62901    0.00206     0.06170     0.4032674                 0.74193
P20                                            0.79458    0.63136    0.00235     0.27552    -0.8788661                -0.82511
P6                                             0.79575    0.63321    0.00185    -0.10048     -2.813072                -0.08124
P9                                             0.79709    0.63536    0.00215     0.39535      1307.855                 0.49149
R6                                             0.79793    0.63668    0.00133     0.10086     -19.31369                -0.04261
R7                                             0.79876    0.63801    0.00133     0.30695     -119.9749                -0.10671
P19                                            0.79955    0.63928    0.00127    -0.33105    -0.5011362                -0.33972
P4                                             0.79967    0.63947    0.00019     0.28390    -0.1010734E-02            -0.03855
P12                                            0.79979    0.63966    0.00019    -0.08018    -0.1831882E-01            -0.01824
(CONSTANT)                                                                                  -912.3016
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=0=PUBLIC-=1=SEP                          08/25/80        PAGE 1704
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE   NONAME   (CREATION DATE = 08/25/80)
                                                                                                         VARIABLE LIST  1
* * * * * * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * *   REGRESSION LIST  6

DEPENDENT VARIABLE..    C176

VARIABLE(S) ENTERED ON STEP NUMBER  7..    P18

                                                                                                          F            P
MULTIPLE R            0.74274       ANALYSIS OF VARIANCE    DF      SUM OF SQUARES         MEAN SQUARE     14.94159     0.0000
R SQUARE              0.55167       REGRESSION               7.      1851908.93785        264558.41969
ADJUSTED R SQUARE     0.51475       RESIDUAL                85.      1505025.12998         17706.17800
STANDARD ERROR      133.06456

----------------- VARIABLES IN THE EQUATION ------------------     ------------- VARIABLES NOT IN THE EQUATION -------------

VARIABLE          B            BETA     STD ERROR B        F        VARIABLE     BETA IN     PARTIAL    TOLERANCE        F

JUR            -222.7439     -0.55422     37.46156     35.354       P1          0.05170     0.05498     0.50692      0.255
P23            0.2140882      2.81445      0.07584      7.970       P2          0.04203     0.03717     0.35069      0.116
P16           -0.4684166     -0.34510      0.15783      8.809       P4         -0.01587    -0.01571     0.43949      0.021
P8             -725.7072     -0.21598    279.14546      6.759       P5          0.08745     0.12676     0.94182      1.372
P22           -0.1952689     -2.55975      0.07584      6.630       P6          0.04036     0.04555     0.57123      0.175
P3              189.9755      0.16669     93.85975      4.097       P7          0.05172     0.06194     0.64300      0.323
P18            0.1220777      0.15370      0.08508      2.059       P9         -0.02657    -0.02612     0.43317      0.057
(CONSTANT)      545.6427                                            P10         0.08698     0.07521     0.33514      0.478
                                                                    P11         0.01569     0.02164     0.85227      0.039
                                                                    P12        -0.04281    -0.05580     0.76178      0.262
                                                                    P13        -0.09837    -0.13550     0.85064      1.571
                                                                    P14        -0.05192    -0.06498     0.70234      0.356
                                                                    P15         0.05476     0.06364     0.60557      0.342
                                                                    P17         0.08445     0.07347     0.33932      0.456
                                                                    P19         0.25850     0.10125     0.06878      0.870
                                                                    P20        -0.03290    -0.03056     0.38673      0.078
                                                                    P21         0.93709     0.06565     0.00220      0.364
                                                                    P24         1.97106     0.06565     0.00050      0.364
                                                                    R1         -0.01670    -0.02281     0.83592      0.044
                                                                    R2         -0.06187    -0.08828     0.91266      0.660
                                                                    R3          0.06093     0.08902     0.95707      0.671
                                                                    R4          0.05338     0.07634     0.91705      0.492
                                                                    R5         -0.06472    -0.09300     0.92572      0.733
                                                                    R6          0.01291     0.01861     0.93146      0.029
                                                                    R7         -0.10747    -0.06529     0.16544      0.360
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(PAIRWISE DELETION) R1 TO R7=7 REGIONS,JUR=O=PUBLIC-=1=SEP                      08/25/80        PAGE 1726
ALL SUBJECTS COMBINED FOR EACH GRADE LEVEL
FILE    NONAME    (CREATION DATE = 08/25/80)

* * * * * * * * * * * * * * * * * * * * M U L T I P L E   R E G R E S S I O N * * * * * * * * * * * * * *   VARIABLE LIST  1
                                                                                                        REGRESSION LIST  6

DEPENDENT VARIABLE..     C176

                                                      SUMMARY TABLE

VARIABLE                                     MULTIPLE R  R SQUARE  RSQ CHANGE   SIMPLE R          B                  BETA

JUR                                            0.51348    0.26366   0.26366    -0.51348      -130.5572            -0.32485
P23                                            0.61072    0.37298   0.10932     0.40448      0.2202677             2.89568
P16                                            0.66355    0.44030   0.06732     0.00503     -0.5146254            -0.37914
P8                                             0.70077    0.49108   0.05078    -0.41411       180.1676             0.05362
P22                                            0.72314    0.52293   0.03186     0.38941     -0.2210056            -2.89713
P3                                             0.73540    0.54081   0.01787     0.05627       251.9282             0.22104
P18                                            0.74274    0.55167   0.01086     0.18484     0.5982629E-01         0.07532
P13                                            0.74826    0.55990   0.00823    -0.26701    -0.8912764E-02        -0.19174
P5                                             0.75529    0.57047   0.01057     0.18147       2.977626             0.08754
P17                                            0.75880    0.57578   0.00532     0.01884      0.1363485             0.22778
P7                                             0.76483    0.58497   0.00918     0.19697       386.3331             0.18121
P19                                            0.76808    0.58994   0.00498    -0.34758     -0.5860729            -0.36515
R1                                             0.77125    0.59482   0.00488    -0.24339      -66.59296            -0.13502
R5                                             0.77334    0.59806   0.00324    -0.04100      -89.42540            -0.14051
P14                                            0.77595    0.60209   0.00403    -0.34826     -0.6207471            -0.13809
P11                                            0.78025    0.60879   0.00670     0.08220     -0.1170208            -0.09947
R7                                             0.78286    0.61286   0.00407     0.27989      -206.2611            -0.16860
P1                                             0.78459    0.61559   0.00272     0.15225     0.1289194E-01         0.14495
P2                                             0.78845    0.62165   0.00607    -0.09371       133.2106             0.23440
P15                                            0.79097    0.62564   0.00398     0.14235      0.2871685             0.10772
P6                                             0.79229    0.62772   0.00208    -0.10624      -3.756373            -0.09970
P20                                            0.79302    0.62889   0.00117     0.24010      -1.272072            -1.09761
P10                                            0.79483    0.63175   0.00287     0.02719      0.4923085             0.83244
P9                                             0.79895    0.63833   0.00657     0.37017       1774.157             0.61276
R2                                             0.80013    0.64021   0.00189    -0.08399      -33.94539            -0.06350
R6                                             0.80071    0.64114   0.00093     0.09609      -17.30075            -0.03508
P21                                            0.80081    0.64129   0.00015     0.38126     0.1572091E-01         0.37309
P4                                             0.80089    0.64143   0.00013     0.26812     0.8320429E-03         0.02916
(CONSTANT)                                                                                    -751.1724
```